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A

GENERAL DICTIONARY OF HUSBANDRY,

PLANTING, GARDENING,

AND THE

Vegetable Part of the *Materia Medica*;

WITH THE

Deſcription, Uſe, and *Medicinal* Virtues

OF THE SEVERAL

HERBS, FLOWERS, ROOTS, &c.

Selected from the Beſt Authorities,

BY THE

EDITORS of the FARMER's MAGAZINE.

VOLUME II.

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MACE. One of the coverings of nutmeg. *See* NUTMEG.

MACCAW TREE. *See* PALM.

MAD APPLE. *See* APPLE.

MADDER, [*Rubia.*] This is the Engliſh name of a plant cultivated with great advantage in ſeveral parts of Europe, and lately in England, being a very capital ingredient in the dying buſineſs. There are ſeveral ſpecies of madder, all of which afford a dye. M. Guettard, of the Royal Academy of Sciences, has experienced that the ladies bed-ſtraw, or cheeſe-rennet, [*gallium*] may be made to yield one; and of this kind is probably the Ray-de-chaye, which is uſed on the coaſt of Coromandel for dying red. M. Dambourney has not, indeed, as M. Duhamel remarks, hitherto been able to extract a good colour from the gallium: but there yet remains room to hope that he may be more ſucceſsful in the future experiments which he intends to make on this root.

Mr. Ray mentions and deſcribes four different kinds of gallium or moilugo, baſtard madder, which, after the laudable example of our enterprizing neighbours, ſhould likewiſe afford matter of experiment to thoſe who wiſh well to this country, and particularly to our dyers.

The azala or izari of Smyrna, perhaps more properly written hazala or lizary (according to the eaſtern method of pronunciation) which is the ſort uſed by the French dyers at Darnetal and Aubenas, to give cotton that fine carnation colour for which Adrianople is famed, is a true madder. Some ſpecies of it grow naturally under hedges and in woods; and the roots of theſe, when carefully dried, yield as fine a dye as the azala of Smyrna. M. Dambourney has cultivated a ſpecies of madder which was found growing wild on the rocks of Oiſſel in Normandy, and the roots of this plant have yielded him as beautiful a dye as the azala of the eaſt. Mr. Ray deſcribes particularly a wild madder which grows only on St. Vincent's rock near Briſtol, but alſo on the rocks about Biddeford in Devonſhire, and in great plenty among the hedges almoſt all over that county. As Mr. Ray calls this the *Rubia ſylveſtris Monſpeſſulana major*, and as M. Duhamel ſuſpects M. Dambourney's Oiſſel madder to be that very ſpecies, it ſurely is a matter of great importance to this nation, and well worth the attention of patriots, to follow M. Dambourney's example in making proper trials of it.

The ſpecies moſt commonly cultivated is the *Rubia tinctorum ſativa*, commonly known among us by the general name of madder. It is of this ſpecies that the plantations of madder are made in Zealand, and in the neighbourhood of Liſle.

The root of madder is a capital drug uſed in dying wool, linen, and cotton; and is indiſpenſibly requiſite in printing linen and cotton, being the only red dye in general uſe for that purpoſe. It was, at the time when the Society for the encouragement of Arts, &c. firſt engaged in the encouragement of it, wholly imported from Holland: though it had formerly been a ſtaple article of produce in our own country. We pay annually for this root to the Dutch an exceeding great ſum; not leſs, according to calculation, than near three hundred thouſand pounds; and, what is ſtill worſe, taking the advantage of the neceſſity we are under to purchaſe it of them, they have not only advanced the price to an exorbitant rate; but adulterate and ſophiſticate the madder in ſo bad a manner, as lays our manufactures, in which it is uſed, under the greateſt difficulties. Theſe manufactures moreover, in which it is abſolutely neceſſary, are of the moſt importance,

importance to us; particularly the printing linen and cotton; which furniſhes employment to ſome thouſands of our women and youth, who would otherwiſe be waſte hands, and many of them burthenſome to the public. Nothing, therefore, could be more worthy the regard of the ſociety, than the introduction of the culture of madder here; which may tend to the national good ſo many different ways.

There was however, at firſt, an almoſt inſurmountable impediment to the culture of madder in England. It conſiſted in this circumſtance, that madder being a crop raiſed on land, it was ſubject to pay the tithe in kind: which was in fact ſo heavy a tax on the produce, as together with the great expence and riſk, from the want of a more perfect knowledge of the manner of cultivation, almoſt entirely diſcouraged all attempts in a larger way. This obſtacle was, nevertheleſs, removed through the endeavours of the Society, by the obtaining an act of parliament, to change the demand of tythe in kind to a modus, or compoſition, of five ſhillings per acre, for a term of years. The ſociety thus, by their interpoſition in this matter, procured the firſt opening to that ſucceſs, which is now likely to attend the attempts, to reſtore the production of this important article to our country.

The ſociety, the mean time, exerted themſelves to incite the public attention and ſpirit, to undertake the culture of madder by premiums. The firſt they offered was for the producing twenty pounds weight, the moſt perfect and beſt cured. This was obtained in the year 1755. They then, being by this means aſſured, that a method was known in England of raiſing and curing good madder, propoſed premiums for the largeſt roots, twenty in number, of one, two, or three years growth: which were accordingly claimed and obtained for each kind, in the year 1758, and again in 1759. Further premiums were given in 1763, 1764, and the following years.

Madder is a plant of very little beauty, it in ſome degree reſembles the common cleavers or gooſe graſs, in its manner of growth. The ſtalks are numerous, ſquare, and commonly of a reddiſh colour: they are weak, ſo that they lie upon the gronnd in their lower part; and in the upper, commonly intangle one with another. The leaves are long and narrow, they ſtand ſix at a joint; ſometimes more, ſometimes fewer, and are diſpoſed like the rays of a ſtar. Their natural colour is a duſky green, but they ſometimes, eſpecially toward the lower part of the ſtalk, grow reddiſh. The ſtalk is hairy, but the leaves are more ſo: their hairyneſs is not a woolly down like that of ſome plants, but is ſhort, rough, and hard, ſo that they prick the hands when touched.

The flowers grow at the tops of the ſtalks, and ſmall branches; they are ſmall, but very numerous, and of a pale yellow. The ſeeds follow, which are contained in a kind of round little heads; the root, which is the uſeful part, is extremely long, and of a beautiful red colour, duſkyer on the ſurface, but very bright within.

The cup in which the flower of madder ſtands is very ſmall, and ſtands upon the rudiment of that little roundiſh fruit in which the ſeed is to be lodged: it is compoſed of a ſingle green leaf, hollowed and divided into four little ſegments at the edge.

The flower is in the ſame manner formed of a ſingle leaf, a little hollow at the bottom, and divided lightly into four parts at the edge. In the centre of this riſe four ſhort filaments, each terminated by a ſingle button or head, from the rudiment of the fruit, which, as it enlarges a little, ſhews itſelf to be compoſed of two parts; there riſes a ſingle filament called the ſtyle of the flower, this comes up in the midſt of the four filaments juſt named, and is divided into two parts toward the top, each of which has a button to it: this, through certain imperceptible apertures, admits the duſt from the heads of the other filaments for the ripening of the ſeed veſſel, which then ſwells, and becomes a kind of double berry: in each part of which, or each berry, is contained a ſingle ſeed.

There are two kinds of madder mentioned by thoſe who treat of plants, theſe are the ſix-leaved kind we have deſcribed, and one which has only four leaves at a joint, but the latter is not worth the farmer's notice.

Madder being one of thoſe plants that roots deep, and the value of which

is in the root; the ſoil for it ſhould be deep and light. This is the principal caution, for it will get nouriſhment whether the ground be richer or poorer, provided it be not altogether barren. A black mould, ſuch as is common in the fens of England, is very proper; and is the ſame ſoil whereon they plant it in Flanders, whence we have our greater ſupply. A loamy ſoil that is in ſome degree rich, and has but little clay in its compoſition, is alſo very proper; of a mixture of loam and mould, as is very common in many parts about the edges of the fen countries. A ſandy ſoil will alſo do well if properly managed.

There is no part of England where this plant would thrive better than in theſe places, for they have all the advantage of the Flemiſh grounds, and this further benefit, that they are drier; the Flemiſh often burſting their roots by their over moiſture, or occaſioning an expenſive manner of dreſſing to prevent that accident.

Whatever be the ſoil for madder it muſt be deep. We have obſerved it is the nature of the root to extend itſelf in length, and that no art can bring it to any great thickneſs; therefore a depth of ſoil is the moſt eſſential point, that it may have room to penetrate. There are uſually produced a great many ſide roots, which ſpread along juſt under the ſurface of the ground. Theſe are the proviſion of nature, for the nouriſhment of the ſtalk and leaves, the great root taking almoſt all the juices it receives to its own nouriſhment. Now as the ſtalks and leaves of this plant are of no uſe or value, it is idle to provide for the maintaining them in vigour at the expence of the main root. Theſe horizontal ſhoots never come to any value themſelves, and as they only take that nouriſhment which ſhould ſupply the main root, the proper courſe is to deſtroy them.

This account of the nature of madder, and of the ſoil that ſuits it, naturally points out a new method of managing it to advantage; of all the plants that can be raiſed, none is ſo perfectly ſuited to the horſe-hoeing huſbandry. The ſoil it requires is ſuch as perfectly ſuits thoſe implements; the method of horſe-hoeing, of all other practice, will the moſt effectually and moſt eſſentially cut off the ſhallow and horizontal roots; and as the main roots are to be encouraged in their growth to the utmoſt, no method of planting can be ſo proper as that in rows at a conſiderable diſtance from one another. This directs in every article the horſe-hoeing huſbandry, as the method for raiſing madder to an excellence, and perhaps ſuch a one as it never reached yet in England. The culture of this profitable and uſeful ſpecies has been recommended frequently and ſtrongly, and has been tried at different times with different ſucceſs, but always with ſome profit; we hope therefore that the farmer will be encouraged, from what has been found of the advantages of this crop, in methods leſs ſuited to its nature, to try it in the way we are about to propoſe; in the which it cannot fail of very well anſwering his care, expence, and trouble; and according to which there is a reaſonable proſpect of his enriching himſelf by it in a few years culture.

Madder is to be planted in ſpring; but the preparation of the ground for it muſt be undertaken long before. Let the farmer who intends to raiſe it look carefully out for a field that has a deep light ſoil, of the nature of either of thoſe kinds we have mentioned. When he has fixed upon the field, in autumn, as ſoon as the crop is off the ground, let him plough it up deeply and thoroughly. Let him leave it in this condition three months, and then going over it with the plough once again, tear it up to a great depth, and thoroughly break and divide it: let him then leave it to himſelf till the end of March. Having ſecured his ſets, let him in the laſt week in March, ſend in his plough again, ſet to its greateſt depth. As the ground has been twice ploughed before, it will very well give way to this. The ſets are now to be taken off from the ſides and heads of the old roots, and the ground is to be harrowed even. Then a line is to be drawn along near the edge, as in the planting of liquorice, and the ſets are to be let into the ground in the ſame manner, at a foot diſtance from one another.

When one row is thus planted, the line is to be removed a foot and half, and another row planted, the ſets in this

this not being placed oppoſite to thoſe in the other, but juſt over againſt the middle of the ſpace between.

The line is then to be removed to the diſtance of five foot, and drawn ſtrait over the ground as before, and a row of the ſets are to be planted there; thus there will be a third row at five feet diſtance from the ſecond, and at ſix and a half from the firſt row: the line is then to be moved again one foot and half, and another, being a fourth row, is to be planted oppoſite the middle diſtances of the laſt. Thus the whole ground is to be planted out. The ſets are to ſtand every where at the ſame diſtance in the row, as at firſt ordered; and the whole field will be laid out in double rows, with five feet intervals; the ſpace or partition between one row and another, of each double row, being one foot and a half.

When the ſets are all in and lightly covered up, let the planter go over the places, where they ſtand, with a garden rake, and lay all level.

The beginning of April is a ſeaſon when ſhowers are ſeldom wanting; but if it ſhould ſo happen that there are none, there muſt be the labour of once watering the ſets. The beſt time for doing it is on the third day after their planting, and when this is done they may be left to nature.

The plants will now quickly appear, and as this is a time when the encreaſing warmth of the ſeaſon, and wet from the ſhowers, ſets every thing on growing, weeds will appear among them. As theſe muſt be principally ſeedlings, for we ſuppoſe no roots left in the tillage, they will not at once over-run the proper growth, becauſe that is planted with good roots; ſo that they need not be attacked ſo ſoon as ever they appear; but when they have got a little height the hand-hoers muſt be ſent in to clear the partitions of them between row and row, not meddling with thoſe in the five foot intervals, except juſt on the outſide of each row.

This is to be done with care and management, and a great deal depends upon it. The inſtructions to be given the hoers are theſe. Firſt to take care of the plants of madder, which being ſet regularly, and now up at ſome height, and being very different in their aſpect from the weeds, cannot well be miſtaken; all this however muſt be pointed out to them, and they muſt be ſtrictly cautioned; for the deſtruction but of a few of the plants where they are ſet ſeparate, and each intended for a large growth, will be a conſiderable loſs to the owner. This being pointed out to them, they are to be ſent in with directions to cut up all weeds in the ſmall partitions, and break the ſurface of the ground as deep as they readily can with thoſe inſtruments; then they are to clear away between plant and plant of the madder; and thence advancing to the outſide they are to cut up the weeds, and break the ground for about a hoe's breadth all along the rows.

This done, the plants are to be left to themſelves three weeks, in which time they will ſtrike very ſtrongly, and the ground juſt above them will be very clear of weeds, from the hoeing; but by this time the middle of the large intervals will be full of weeds of ſome growth.

The horſe-hoe is now to be ſent in, and is to cut along the middle of each interval, to as much depth as it can: this will thoroughly root up and deſtroy that growth of weeds, and break the ground. The weeds will, in great part, be buried, and will become a kind of manure, for weeds that cannot grow ſoon rot at this ſeaſon, which is warm and wet; and the ends of ſome of the longeſt fibres of the madder roots will be broken off, and new ones will conſequently grow in great quantities from them, as is ſeen in cutting of the fibres of roots in the gardener's way of planting; and there will be a fine quantity of freſh and free earth for theſe new roots, as alſo for what farther ſhoots the others may make; and it will be full of nouriſhment for them.

We have ſaid that the main downright roots are all that are of value in his madder plants. Now the horizontal or ſpreading ones, that run under the ſurface, are to be conſidered in two diſtinct lights, as they are larger or as they are ſmaller, for at one of theſe times they impoveriſh, but at the other they feed them; ſo that at one time they are to be nouriſhed, and at another deſtroyed.

It is while they are young that they are

are of advantage to the main root. This is their condition in the preſent inſtance, and it is therefore we are recommending every method to feed and to encreaſe them; and on the other hand, we ſhall ſoon after take as much pains to deſtroy them. The part of the madder above ground, now though of ſome bigneſs, is not ſo large as to demand any vaſt quantity of nouriſhment; the root, on the contrary, is puſhing downward, and grows the faſter the more it is ſupplied by its fibres, and the leſs it is drained by the plant above.

This is the caſe in many inſtances at the period of growth whereat the madder is at preſent, but in none more viſibly. The firſt nouriſhment the new planted roots take in, goes to the puſhing ſome fibres from themſelves outward, and a ſhoot of ſtalk and leaves upward. This ſhoot takes up the greater part of the nouriſhment in the firſt days, but afterwards it grows flower, and requires a ſmaller proportion of what is drawn. After this there is a period when the main root is taken care of and ſupplied, that it may be able to ſend up nouriſhment in abundance to the herb, when ripening its flowers and ſeeds, that being the great purpoſe of nature in all plants: for this purpoſe alſo in madder a number of long horizontal roots grow out every way under the ſurface.

Theſe horizontal fibres we have named, and for which we are now ſo carefully providing by the horſe-hoe, are in time to become thoſe long horizontal and ſide roots. At preſent they are very ſerviceable, for they draw in nouriſhment in vaſt abundance; which being not demanded in that quantity by the plant in its preſent ſtate, goes according to the deſign of nature, to the feeding and enlarging the main or downright roots. The preſent horſe-hoeing has vaſtly encouraged, filled, and encreaſed them; but the next is to deſtroy them.

Some time after this horſe-hoeing there will be weeds again in the partitions, and between plant and plant, for this is a ſeaſon that produces them very quickly: the hand-hoers muſt be ſent in again to cut them all up, and the plants of the madder being kept clear, will have a healthy aſpect, which is very eſſential to the good growth of the root, and which they would not have if choaked up with weeds: ſome weeks after this, when the madder has grown to a conſiderable ſize, let the horſe-hoe be ſent in a ſecond time, with orders to cut much nearer one ſide, or one row, alternately; by this means all the large horizontal roots on that ſide will be cut and broken off, and only ſmall ones will grow from the ends of them, which will tend to the ſervice of the main root again.

The hand-hoers at this laſt time need not hoe the outſides of all the rows, but only alternately of thoſe near which the horſe-hoe is not this time to come, for the next hoeing it is to take the others. This inſtrument could not be brought ſo near the rows while they were young, for fear of tearing up or burying the plants, but they are too well eſtabliſhed now to be in any danger on that head, eſpecially as it is done only on one ſide; for the horſe-hoe is to be carried along the fartheſt ſide of the next interval all the way, in the courſe of this operation; ſo that it never comes near both ſides of the ſame row.

The plants will immediateiy after this thrive ſurpriſingly, and advance toward their flowering. There will need no more hand-hoeing, for they will be now of ſuch a ſize and ſtrength, as to deſtroy all the weeds about them; and the next horſe-hoeing, which will be the laſt for the ſummer, will compleat the work for the firſt ſeaſon.

This is to be done as ſoon as the weeds have got ſome head again in the intervals, for they will riſe there tho' they be over-powered in the partitions. The inſtrument is now to be carried on the other ſides of the rows alternately, ſo that now there will have been a thorough and deep cutting up of the ground, near both ſides of every row.

The large horizontal roots, which would impoveriſh the main roots, and be of no value in themſelves, are now broke and cut off on this ſide alſo; and the main roots, which are now large and ſtrong, have all the advantage of the nouriſhment

The flower and ſeed of madder are wholly uſeleſs: and as a plant's running to ſeed impoveriſhes the root, this dictates

dictates a new practice in the present case, which is the cutting down the plants just before they are breaking out into flower.

Let this be done with caution, and with moderation. The farmer is not to cut them down close to the ground; it is enough if he stop their running to seed, therefore all he has to do is to cut them off half a foot below the top. This will take off all the flower buds, and yet will leave enough of the plant to draw up a great quantity of sap, and keep nature in her proper course. By this means a vast quantity of rich juice, intended for the perfection of the plant in its ripeness, will go to the main root, for there will be no large side roots to take it up; and the increase in that useful part will be very surprising.

The stalks will shoot out side branches from the part where they were cut off, and from every joint below, and will grow stronger for that cutting, and very bushy. Some of these will make an attempt to flowering, and they may be left to themselves in it. The few flowers that grow upon these shoots are not like the full and universal flowering of the whole growth, they will do neither good nor harm, and are not worth regarding.

The first summer will thus pass, and the plants, not having drawn a vast deal of nourishment upwards, the roots will be greatly strengthened and encreased. This will be the condition of the crop at the autumn of the first season; and all that is to be done is in the same manner to promote the growth of the root, during the rest of the time it is to remain in the ground, which is to the next autumn. A crop of madder, though it remain but eighteen months in the ground, is to be accounted by the farmer as a two years standard, because the preparation of the land takes up the other six. The whole course is this; at autumn the ground is to be taken for it; during the winter it is to be prepared: and in spring it is to be planted: the next autumn the plants have had one summer's growth, and they are to have another, for they must remain through the winter, and the following summer: and the roots must be gathered in autumn following, which is two years from the time of beginning the preparation of the ground.

In the usual way of management, when the roots are taken up at this time for sale, another piece of land is to be fought out for the next crop; but in the method we have proposed by the horsehoeing husbandry, the same piece of ground may raise madder for ever; and will be fitter for it than any other could.

All the winter the ground is to lie perfectly quiet: in spring a fortnight before the plants begin to shoot, the horsehoe should be sent in to cut a deep furrow in the center of every large interval, and the hand-hoers to cut up those weeds that rise in the partitions. After this there will be no more care needful about them, for the growth will be too strong to suffer any annoyance; but the intervals will have weeds, and should be horsehoed just as in the preceding summer, to prevent their farther growth, and to give new supplies of nourishment to the main roots, as well as to cut away and destroy the side or horizontal ones.

This is to be done exactly in the same manner as before mentioned for the first season, and therefore needs not be described more at large here. By this means the crop will proceed as it ought in every respect; and this season the whole care will be over.

In autumn, when the plants wither, is the time to take up the roots; this must be done with care and circumspection, for the more they are broke in the ground, the more of them is lost. The regular method of planting them comes in here to be of great use, for the people employed to take them up know where to look for them one by one, and where they may, and where they may not, work about them.

When they are all taken up they must be cleaned from dirt, and after a quantity of fine sets are separated for a new plantation, they are to be dried for sale. The dyer will be always a ready purchaser, nor need the husbandman fear to overstock the market.

Madder has little or no smell; a sweetish taste, mixed with a little bitterness. The virtues attributed to it are those of a detergent and aperient, whence it has been usually ranked among the opening roots, and recommended in obstructions of the viscera, particularly of the kidneys, in coagulations of the blood from falls or bruises

ſes, in the jaundice, and beginning dropſies.

It is obſervable, that this root, taken internally, tinges the urine of a deep red colour; and in the philoſophical tranſactions, we have an account of its producing a like effect upon the bones of animals who had it mixed with their food: all the bones, particularly the more ſolid ones, were changed both externally and internally, to a deep red; but neither the fleſhy or cartilaginous parts ſuffered any alteration: ſome of theſe bones, macerated in water for many weeks together, and afterwards ſteeped and boiled in ſpirit of wine, loſt none of their colour, nor communicated any tinge to the liquor.

Petty MADDER, [*Aſperula.*] A plant growing wild in many woods in England. *See* WOODROOF.

MADS. EARTHWORMS. *See*

MADWORT. [*Alyſſum.*] There are ſeveral ſpecies of this plant growing naturally in warmer climates, yet will in general bear the cold of ours. They are propagated by ſlips or ſeeds; the flowers appear in April or May; are various, white, yellow, &c. and laſt about three weeks in beauty, if the weather is moderate.

MADNESS, *in a Dog.* There are abundance of preſcriptions for the bite of a mad dog; but whether any are good we cannot preſume to ſay. The Ormſkirk medicine is much eſteemed; but if we might adviſe, it ſhould be to cut out the part or cauterize it immediately.

MAHOGANY, [*Cedrus Mahogoni.*] This tree is a native in the warmeſt parts of America, growing plentifully in the iſlands of Cuba, Jamaica, and Hiſpaniola; there are alſo many of them on the Bahama iſlands. In Cuba and Jamaica there are trees of a very large ſize, ſo as to cut into planks of ſix feet breadth; but thoſe on the Bahama iſlands are not ſo large, though they are frequently four feet diameter, and riſe to a great height, notwithſtanding they are generally found growing upon the ſolid rocks, where there is ſcarce any earth for their nouriſhment. The wood which has been brought from the Bahama iſlands has uſually paſſed under the appellation of Madeira wood, but there is no doubt of its being the ſame wood as the mahogany.

The leaves of this tree are winged like thoſe of the aſh, having commonly ſix or eight pair of pinnæ (or lobes) which are ſhorter and broader at their baſe than thoſe of the aſh, where they adhere to the midrib by very ſhort footſtalks; theſe lobes are very ſmooth, having but one vein running through each, which is always on one ſide, ſo as to divide them unequally. The entire fruit, before it opens, is of a brown colour; theſe fruit grow erect upon long footſtalks, which cloſely adhere to the five cornered column, running through the middle of the fruit, and to which the ſeeds are faſtened, lying imbricatim like ſlates on a houſe, over each other; ſo when the fruit is ripe, the outer cover divides at the bottom into five equal parts; and when theſe fall off, and the ſeeds are diſperſed, the foot-ſtalk and column remain ſome months after on the tree.

It is propagated by ſeeds, which may be eaſily procured from the Bahama iſlands, from whence moſt of the good ſeeds which have come to England were brought; for moſt of thoſe which have been ſent from Jamaica, although brought in their pods, have not ſucceeded, whereas thoſe from the Bahama iſlands have grown as well as if they were immediately taken from the trees; the ſeeds ſhould be ſown in ſmall pots filled with light ſandy earth, and plunged into a hot-bed of tanners bark, giving them a gentle watering once a week; if the ſeeds are good, the plants will appear in a month or five weeks; and when the plants are two inches high, a ſufficient number of ſmall pots ſhould be filled with light earth, and plunged into the tan-bed a day or two, that the earth may be warmed before the plants are put into the pots; then the young plants ſhould be ſhaken out of the pots, and carefully ſeparated, ſo as not to tear their roots, and each planted in a ſingle pot, being careful to ſhade them till they have taken freſh root; after which they muſt be treated in the ſame manner as other tender plants from the ſame climate, being careful not to give them much water, eſpecially in winter. If the plants are properly managed, they will make conſiderable progreſs.

MAIDEN-HAIR, [*Adianthum.*] The ſpecies are 1. *The officinal or true Maiden-hair,* 2. *Canada Maiden-hair.* The firſt

fort is the true Maiden-hair, which is directed to be used in medicine; but as it does not grow naturally in England, so the Trichomanes is usually substituted for it, which is found growing wild in great plenty in several parts of England. The other is a native of the South of France, Italy, and the Levant. It usually grows out of the joints of walls, and the fissures of rocks, so that whoever is inclinable to keep this plant in their gardens, should plant it in pots filled with gravel and lime rubbish, in which it will thrive much better than in good earth; but the pots must be sheltered under a frame in winter, otherwise the plants are often killed by the frost.

The second sort is often preserved in gardens for the sake of variety; this should be planted in pots, and treated in the same manner as the former; for although it will live through the winter in the open air in moderate seasons, yet in severe frost it is often destroyed. This sort grows naturally in Canada in such quantities, that the French send it from thence in package for other goods, and the apothecaries at Paris use it for the Maiden-hair, in all their compositions in which that is ordered.

Maiden-hair has been greatly celebrated in disorders of the breast, proceeding from a thinness and acrimony of the juices; and likewise for opening obstructions of the viscera, and promoting the expectoration of tough phlegm. But modern practice pays little regard to it; nor is it often to be met with in the shops.

English MAIDEN-HAIR, [*Trichomanes.*] There are three or four varieties of this plant, which grow naturally in Europe; but in America there is a great number of species, which are remarkably different from each other, as also from the European kinds.

These being of the tribe of ferns, or capillary plants, are seldom preserved in gardens. Their roots should be planted in moist shady places, especially the European sorts, which commonly grow from between the joints of old walls, and in other very moist shady situations; but those sorts which are brought from hot countries must be planted in pots filled with rubbish, and strong earth mixed, and in winter they must be screened from hard frost, to which, if they are exposed, it will will destroy them.

The common sort in England is generally sold in the markets for true Maiden-hair, which is a very different plant, and not to be found in England, it being a native of the south of France, and other warm countries, so is rarely brought into England.

White MAIDEN-HAIR, [*Ruta Muraria.*] A plant growing out of old walls in many parts of England.

MAIZE, [*Zea.*] *See* GUINEA WHEAT.

MALACCA BEAN. See *Anacadium.*

MALABAR-NUT, [*Justicia.*] This plant is a native of Ceylon, but hardy enough to live in a green-house, in England, without any artificial heat. It rises here with a strong woody stalk to the height of twelve or fourteen feet, sending out many spreading branches, garnished with spear-shaped oval leaves six inches long and three inches broad, placed opposite. The flowers are produced on short spikes at the end of the branches, which are white with some dark spots, but are not succeeded by any seeds in England.

It may be propagated by cuttings, which, if planted in pots in June and July, and plunged into a very moderate hot-bed, will take root, but they must be screened from the sun; and if the external air is excluded from them, they will succeed better than when it is admitted to them. It may also be propagated by laying down the young branches, which will take root in one year, and then should be put each into a separate pot, and placed in the shade till they have taken new root; then they may be removed to a sheltered situation during the summer, and in the autumn they must be housed, and treated in the same way as the orange trees, with only this difference, that these require more water.

MALANDERS. This is an external disorder of a horse very painful and troublesome, and very difficult of cure; insomuch that some say nothing more is to be attempted than to alleviate the pain; and that it is dangerous to stop the distemper.

This is a very unhappy error; for there is no degree of the Malanders but may be cured by proper management; and that with perfect safety.

This disease shews itself on the forelegs, upon the inner part, just against the bending of the knee.

It

It is not a knob or ulcer like the farcy, but a hard, dry, flat ſcab, of which ſometimes there is only one great one, ſometimes ſeveral ſmaller; and theſe are cracked and chopped upon the ſurface, and have ſtiff hairs like briſtles growing upon them.

This is the whole of the diſorder: it ſometimes is very violent and inveterate, ſometimes more ſlight. When it is very bad it makes the horſe halt; and when leaſt it occaſions him to go ſtiff till warmed with exerciſe.

The general cauſe of the malanders is bad management. It is the common diſorder of horſes kept in a ſlovenly manner, and much more rarely affects thoſe which are managed more carefully.

Thoſe horſes are moſt ſubject to it which have moſt hair upon their legs, and they are the moſt difficult to cure.

One eſſential difference the farmer is to make in his conduct, for a horſe under this diſorder, which ariſes from this conſideration, that ſometimes the malander is only a foreneſs in the part, while the horſe is otherwiſe in health; ſometimes the blood is corrupt and bad, and in this caſe the diſorder is more violent in its degree, and more difficult to be cured.

When the malander is only the effect of careleſſneſs, and it is upon a horſe otherwiſe healthful, the method to be obſerved is this. Let him be kept to his uſual work and uſual food; and let the following waſh be made for the part:

> "Set on a ſaucepan with three quarts of water, put to it half a pound of fœnugreek-ſeed bruiſed, and a pound of freſh marſhmallow root cut in ſlices. Boil all this till it is like a jelly, ſtrain it off hot, and preſs it hard out, then add to the thick liquor half a pound of opodeldock ointment."

Make ſome of this hot morning and night, and dipping flannels in it, wrap them round the leg where the complaint is, as hot as the hand can bear to touch it. Let this be ſeveral times repeated; and at the laſt of all, wet ſome of the ingredients, which muſt be ſaved when the liquor has been preſſed out, with ſome of the liquor hot, and lay them upon one flannel, cover them with another, and wrap the whole round each leg, tying it round ſo as to keep it on, but not tight.

Let this be done every day twice, as directed, till the hard ſubſtances begin to ſoften; after this once in four and twenty hours will do; and there will thus be a perfect cure.

Before the firſt dreſſing let the hair be clip'd round about the place, and the whole part about the Malanders waſh'd clean with warm ſoap ſuds. Let this be repeated at times during the cure; and after it is perfected, let the legs be kept very clean in this part, for fear of its returning.

In this manner a horſe will be cured very eaſily, and very certainly, that has no taint in his blood: but if there be that added to the outward malady, care muſt be taken accordingly, by giving inward medicines at the ſame time.

When this is the caſe, the owner will perceive it by his habit of body; and by the outward remedy not taking its deſired and natural effect; he is then to proceed thus:

Let a pound of crude antimony in powder be mixed with four pounds of flour of brimſtone; & let ſome of this be ſprinkled among his food. This is better in ſuch a caſe than giving it in balls or drenches, for he takes it with his nouriſhment a little at a time, and often; and accompanying the food in its paſſage through the Inteſtines, its virtue goes into the blood, together with the nutritive part of the food.

I have heard many who ſhould know ſomething better than the vulgar, ſay, that they would not cure a horſe of the malanders if they could; for that all that is prudent is to keep him from growing lame with them. They have an old proverb that has miſled them from father to ſon for many generations, which is, "that curing the malanders is ſhutting up the wolf in the ſheep-cot." But they may be ſure of this, not only in the preſent caſe, but in all others whatever, that there will be no danger of damage in curing any outward diſorder, when the blood is at the ſame time rectified within.

We have ſhewn the difference already, that when the complaint is only external, outward remedies alone may be truſted, but when the blood is affected, inward things muſt be given to aſſiſt. The danger even of a miſ-

take in these cases, is not so great as these persons apprehend; for when the blood is in fault, and no care has been taken to amend it in the cure, the common consequence is only, that it breaks out again.

MALE BALSAM APPLE. *See* APPLE.

MALLOW, [*Malva.*] This is a plant growing common enough in the fields, the leaves are ranked the first of the four emollient herbs: they were formerly of some esteem, in food, for loosening the belly; at present decoctions of them are sometimes employed in dysenteries, heat, and sharpness of urine, and in general for obtunding acrimonious humours: their principal use is in emollient glysters, cataplasms, and fomentations.

There are several species of this plant, exotics, cultivated in the gardens, propagated by seeds.

Bastard MALLOW. *See* BASTARD.

Jew's MALLOW, [*Corchorus.*] There are several species of this plant brought from the East and West Indies and South America, but are all too tender to thrive in England in the open air, therefore their seeds must be sown on a hot-bed in the spring, and when the plants are come up and fit to remove, they should be transplanted on a fresh hot-bed to bring the plants forward. After the plants are rooted in the new hot-bed, they must have free air admitted to them every day, for they must not be drawn up weak; and when they have obtained strength, they should be transplanted each into a separate pot, and plunged into a hot-bed, observing to shade them from the sun till they have taken root; in June they should be gradually inured to the open air: part of them may be shaken out of the pots, and planted in a warm border, where, if the season proves warm, they will flower and perfect their seeds; but as these will sometimes fail, so it will be proper to put one or two plants of each sort into pots, which should be placed in a glass-case, where they may be screened from bad weather; and from these good seeds may always be obtained.

Indian MALLOW, [*Urena.*] There are four species of this plant brought from China and the coast of Malabar. They are propagated by seeds in a hot-bed, and require the assistance of a stove to preserve them.

Marsh MALLOW, [*Althæa.*] This plant grows naturally in moist places in divers parts of England, and is frequently used in medicine. It has a perennial root and an annual stalk, which perishes every autumn. The stalks of this plant grow erect to the height of four or five feet; these are garnished with leaves which are hoary and soft to the touch, and placed alternately on the branches; the flowers come out from the wings of the leaves, which are shaped like those of the mallow, but are smaller and of a pale colour. It may be propagated very fast, either by seeds or parting of their roots. When it is propagated by seeds they should be sown in the spring, but if by parting of the roots, the best time is in autumn, when the stalks decay. It will thrive in any soil or situation, but in moist places will grow larger than in dry land.

This plant has the general virtues of an emollient medicine; and proves serviceable in a thin acrimonious state of the juices, and where the natural mucus of the intestines is abraded. It is chiefly recommended in sharp defluxions upon the lungs, hoarseness, dysenteries, and likewise in nephritic and calculous complaints; not, as some have supposed, that this medicine has any peculiar power of dissolving or expelling the calculus; but as by lubricating and relaxing the vessels, it procures a more free and easy passage. Althæa root is sometimes employed externally for softening and maturating hard tumours: chewed, it is said to give ease in difficult dentition of children. There are two other species of this plant brought from Portugal and Hungary, both propagated by seeds.

Rose MALLOW. *See* HOLLYHOCK.

Tree MALLOW, [*Lavatera.*] There are several tall herbaceous flowering annuals and shrubby perennials of this plant, bearing large red, white, and purplish flowers, continuing in bloom from June till August or September.

They are all proper ornaments for any part of the pleasure ground. The annuals particularly have singular beauty, their flowers being large, numerous, and conspicuous, and very proper furniture where large showey plants are required; and are easily and abundantly raised from seed in the open ground.

The

The ſhrubby kinds are alſo good furniture for ſhrubbery compartments, having large, ſtrait, upright, durable ſtems, terminated by branchy buſhy heads, and very large ſoft foliage, that form a fine variety in aſſemblage; though their flowers are often hid by their large leaves. Theſe perennial kinds ſhould have a dry ſoil, otherwiſe are apt to go off in two or three years; a freſh ſupply, however, may always be raiſed from ſeed in the common ground.

They are propagated abundantly by ſeed in the open ground in the ſpring; the annuals in the place where ſowed, and the perennials alſo either where they are to remain, or for tranſplantation.

Syrian MALLOW, [*Hybiſcus.*] This plant is commonly known among nurſery-men by the name of Althæa frutex.

Viſcous MALLOW, [*Malvaviſcus.*] This hath a ſhrubby ſtalk, branching ten or twelve feet high, bearing ſcarlet flowers, ſucceeded by roundiſh ſcarlet viſcous berries.

Venice MALLOW, [*Hibiſcus Trionum.*] Trionum, Bladder Ketmia, Flower of an hour. This is an annual plant bearing flowers of very ſhort duration, which in hot weather only juſt open, and then wither away in an hour or two. Its propagation is by ſeed ſown either in autumn or ſpring in the place where they are to remain, leaving about three of the beſt plants on the ſpot.

Yellow MALLOW. *See* INDIAN MALLOW.

MALT. Barley prepared, to fit it for making beer or ale, by ſtopping it ſhort in the beginning of vegetation.

It is ſaid, that the ſoil on which barley grows makes a conſiderable difference in the grain, and that the barley fitteſt for malt is that which grows on a rich, light, or gravelly ſoil, and which has been raiſed from ſeed brought from a farm of a different ſoil and ſituation. The fulleſt and largeſt grains of ſuch a crop ſhould be choſen for making malt. It ſhould be heavy and perfectly ſound, and ſuch as has not ſuffered any accident in the field. Its being a little heated in the mow is by ſome reckoned an advantage, becauſe the grain will be the more equally dried, and will conſequently the more equally imbibe water. If it has been ſo much mow-burnt as to look blackiſh when broken at the root end, or as Mr. Combrune ſays, if it has ſuffered a heat of 120 degrees, it is unfit to make good malt. It is alſo found by experience, that barley taken immediately from the field does not malt ſo kindly as that which has been ſome time in the houſe, or mow. Special ſhare ould be taken that it be free from the ſeed of weeds; for theſe, in the malting, are apt to give the grain a bad taſte, which cannot by any means be afterwards got rid of.

By germination, all the principles of barley are put in action. The heat which it undergoes in malting ſeparates and divides its parts; and the viſcidity which it before poſſeſſed is removed by the looſer texture of its oils, and their intimate union with the ſalt, which gives malt the ſweetiſh taſte that diſtinguiſhes it from barley.

In order to its being malted, the barley is put into a ciſtern lined with lead or ſtone, and covered with water about ſix inches deep above the barley, to give room for its ſwelling. All the good grain will ſink in the water; but after ſtirring it, the imperfect or diſtempered grains will riſe to the ſurface. Theſe ſhould be ſkimmed off, and given to Poultry or hogs, for they will never make good malt. By the water gaining admittance into the barley, a great quantity of the air is expelled, as appears from the number of bubbles which riſe on the ſurface.

The barley is left in the water two or three days, more or leſs, in proportion to the heat of the weather and the dryneſs of the barley. A judgment is formed that grain is fully ſaturated with water, from its appearing turgid, and eaſily giving way to an iron rod dropped perpendicularly into it. Or, take a corn from the middle of the ciſtern, and hold it ſteadily by the two ends, between the fore-finger and thumb: preſs it gently, and if it continues firm when ſo preſſed, and the ſkin does not break, it muſt ſoak longer: if it cruſhes together and feels mellow, and the ſkin crack, it is watered enough. Nicety in this is a material point, and can be learnt only by experience. If the grain ſhould be ſuffered to remain too long in water, it would begin to loſe part of its ſweetneſs. When it has been ſteeped ſufficiently, the water is drawn off.

The

Barley ſometimes appear to have been heated in the Barn or Stack, called Sour-burnt - and looks ſo often which only aſſected by May-weed, but when it has the weed ſmell - (ſee May-weed)

The water uſed for this purpoſe ſhould be that of a clear running ſtream, or rain water; or if ſuch cannot be had, pond water, provided it be ſweet and clean, will do very well; or pump water, which ſhould be rendered ſoft if it be naturally hard. If the water made uſe of be any way tainted, it communicates to the malt a taſte which it never loſes. Mr. Combrune adviſes the adding of lime to the water in which the barley is ſteeped: but this ſeems to be improper, becauſe it appears from Dr. Home's experiments that lime renders water hard.

From the ciſtern, the barley is laid in a regular heap or couch, where it muſt remain thirty hours, or till it has contracted a heat. It muſt then be worked in one or more heaps, and turned every four, ſix, or eight hours, according as the weather is cold or hot. When it begins to ſpire, it ſhould be turned every three or four hours, according to the temperature of the air; and as it comes (for ſo its ſpiring is commonly termed) the heap muſt be ſpread thinner to cool it, leſt it be heated too much, and the germination be carried on too faſt, by which the oils would be too much conſumed. The turning of it muſt be continued in proportion as it is more or leſs ſlow in growth, ſo that it may be brought tolerably dry to the kiln. When the roots begin to deaden, the couch muſt be thickened again, and often turned, that the growth of the roots may not revive. At this time, the ſpire ſhould be near piercing through the outer ſkin of the barley: for if it grows quite out, the ſtrength of the malt will be too much conſumed. After the malt is made thus far, the common practice is to lay it at once on the kiln: but the beſt way is to gather it all up in one heap, to let it lie in that ſtate twelve hours, and then to turn it every fourth hour, during the ſpace of twenty-four hours.

No perſon ſhould be ſuffered to tread on the malt with their ſhoes, while it is on the floor: becauſe many grains are inevitably bruiſed thereby, and theſe, vegetating no longer, afford the roots of the other grains a ſubſtance into which they extend their fibres, and are by that means entangled in bunches: and beſides this, the bruiſed corn acquires a degree of putrefaction which taints the liquor made of the malt intermixed therewith. Equal care ſhould alſo be taken, that the grain be not bruiſed by any other means.

Mr. Combrune thinks, that the time moſt proper for malting is when the temperature of the air is ſuch that barley begins naturally to germinate, at which ſeaſon the thermometer marks from between 32 to 40 degrees. How far that time may be extended, experience alone can determine. The warmer the weather is, the greater muſt be the diſadvantage under which the malſter labours; becauſe the motion of the fluids is then ſo ſtrong, that the proceſs goes on too quick, and the finer parts are apt to fly off; the conſequence of which is, that inſtead of a ſweet, the malt inclines to a bitter taſte, the oils being turned rancid. This is ſo univerſally experienced, that brewers carefully avoid purchaſing what is termed latter-made malt.

The grain thus prepared for drying is ſpread on the kiln, where, meeting with a greater heat than is ſuited to vegetation, its farther growth is ſtopped. It is ſpread on the kiln three or 4 inches thick, and turned every three or four hours. The laying of it thicker is often attended with inconveniences, among which is particularly its being unequally dried; and therefore that ſhould be avoided. The ſtrength and duration of the fire is different, according as the malt is intended to be dried, pale, amber, or brown. The pale malt requires more leiſure and leſs fire than the amber or brown.

Pale and amber malt are dried with coke or culm, which not emitting any ſmoke, give the malt a brighter colour, and do not communicate that bad reliſh which malt has when dried with wood, ſtraw, &c. the ſmoke of which taints it. Coke is beſt, becauſe its fire gives a ſteady and conſtant heat, whereby the malt is dried uniformly. If wood, or any vegetable fuel be uſed, it ſhould be extremely well dried, in order that being as free as poſſible from moiſture, it may yield the leſs ſmoke.

The ſize of the malt kiln is generally proportioned to the quantity of malt for which it is intended. Some build their kiln ſquare, and others make it round; but this laſt is undoubtedly the beſt form, becauſe the heat of the fire is more equally diffuſed therein, and the grain is of courſe more equally dried.

Various

Various ſubſtances have been made uſe of for covering the kiln, ſuch as tiles, plates of tin, and wire: of theſe, the wire is to be preferred, becauſe it does not contract ſo great a degree of heat as to parch the grain in contact with it: but for this very reaſon, hair-cloth is preferable to any other covering; becauſe, when any part of the malt is in immediate contact with a ſubſtance more ſolid than itſelf, and therefore capable of receiving a proportionably greater degree of heat, the malt in contact with that heated body is parched or burnt, by heat which is not equally diffuſed through the whole maſs, which maſs cannot therefore be all equally heated. The hair-cloth is ſpread upon ſmall wooden rafters, and theſe are ſupported by bars of iron laid acroſs the kiln.

An ingenious and attentive malſter marked the degree of heat in the malt whilſt on the floor: and the reſult of his obſervations in this reſpect is as follows. During the firſt ten days that the malt was on the floor, the heat in it was between 50 and 60 degrees. During the next three or four days, the heat was increaſed from 60 to 65 and 67 degrees; and during the laſt days of its lying there, to 80, 84, and 87, which laſt was the degree of heat when the malt was put on the kiln. There cannot be any abſolute rule as to the difference of heat during the different times in the proceſs of malting, becauſe it muſt be ſuited to the heat of the air: at leaſt we have not yet ſufficient data whereon to found ſuch a calculation. The heat of the malt on the kiln when fit for pale malt was 120 degrees, and when it was fit for brown the heat was 147.

This intelligent artiſt's obſervation, that the malt was fit for what is called pale malt when its heat was at 120 degrees, ſuggeſts a caution which ſhould be moſt carefully attended to, namely, that whatever colour it be intended to give to the malt, the heat at firſt ſhould always be the ſame: thus, for example, malt which is dried to the degree of high brown, ſhould firſt be rendered pale malt, then amber, and ſo on progreſſively; not by a ſudden increaſe of the fire, but by a longer continuance thereof. In this manner, the whole body of the grain is equally and gradually dried; whereas a ſtrong and quicker fire would parch, or as it were ſinge the outſide, while the internal parts remain moiſt: and as that moiſture is afterwards evaporated, it muſt crack the ſurrounding hardened cruſt, whereby the grain is again damaged in another reſpect.

As ſoon as the malt is dry, it muſt be removed from the kiln, and ſpread thin, that it may cool to the temperature of the air. It cannot be ſuppoſed, that any of its parts are capable of retaining the fire in ſuch manner as not to ſuffer it to eſcape; though ſome have conceived that they do. In proportion as malts are dried, their particles are more or leſs ſeparated, and coming in contact with water, they ſtrongly attract from it particles which fill up their interſtices. In maſhing, this action between the malt and the water generates a ſmall degree of heat, but no way durable; though from hence aroſe the opinion, that brown malt is full of fire.

Barley may, at a medium, be ſaid to loſe by malting one fourth part of its weight, including what is ſeparated from it by the roots being ſkreened off: but this proportion varies, as it is more or leſs dried.

The condition of the barley, as to its greenneſs or ripeneſs, at the time of its being gathered in, is clearly diſcernable when it is melted. If it were gathered green, it rather loſes than gains in quantity, the malt becomes of a ſmaller body, appears ſhrivelled, and is often unkindly hard; whilſt, on the contrary, that which was cut at full maturity increaſes in malting, appears plump, bright, and clear, if properly carried thro' the proceſs, and on being cracked, readily yields that fine mealy ſubſtance ſo much deſired by brewers.

Malt which has not had a ſufficient time to ſhoot, ſo that its plume, or acroſpire as the adepts in malting call it, may have reached to the inward ſkin of the barley, remains charged with too large a quantity of its unattenuated oils. All thoſe parts which have not been put in motion by the act of generation, will, when laid on the kiln to dry, be ſo hardened, as not to be ſoluble in water, and conſequently will be loſt to the ſtrength of the drink.

When malt is ſuffered to grow too much, or until the ſpire has ſhot through the ſkin of the barley; though all

all that is left be malt, yet as too large a portion of its oils will have been expended in vegetation, the malt will be greatly diminiſhed in proportion to what it ought to have been, & what remains cannot be fit to brew drink for long keeping, becauſe of the loſs of the oils.

Malt which has been duly worked on the floor, will, if it has not been ſufficiently dried on the kiln, be apt to germinate or ſprout afreſh; perhaps to conceive ſo great a heat as to take fire; and ſhould it continue long with a moderate degree of heat, the leaſt evil that can be expected is, that it will grow mouldy and have an ill flavour.

Malt well worked, but over-dried, will be ſo hardened, or it ſ aponaceous quality will be ſo deſtroyed, that it will not imbibe from the air that moiſture which is neceſſary to mellow it, and render it fit for brewing: for when it has been previouſly ſoftened by the moiſture of the air, it mixes more eaſily & more intimately with the water, and by that means yields a more copious extract, than it would otherwiſe do.

Malt juſt, or but lately, taken from the kiln, remains warm a conſiderable time. Until it becomes as cool as the ſurrounding air, it does not mellow by the addition of a due quantity of moiſture from the air: and the wort made of ſuch malt requires a much longer boiling before it breaks, than that which is made of malt ſome months old.

The practice of thoſe malſters who ſprinkle water on malt newly taken from the kiln, to give it the appearance of having been made a proper time, is highly blameable. It is in fact a downright fraud, practiſed chiefly becauſe leſs grain then fills the buſhel: but a farther evil is, that if it be not uſed ſpeedily, it heats, ſoon grows mouldy, and ſuffers great damage.

Malt dried on a kiln not ſufficiently heated muſt require a proportionably longer time for it to receive the due effect of the fire, for want of which it will be in the ſame ſtate as malt not thoroughly dried. If the fire be too quick, or too fierce, inſtead of gently evaporating the water from the corn, it ſcorches the outward ſkin, and ſeparates it from the body of the grain. The malt to which this happens is called blown malt; of which Mr. Combrune obſerves, that by the internal expanſion of its parts, it occupies a larger ſpace than it ought to do. He adds, that if ſuch a fire be continued, it changes ſome parts of the grain into ſo brittle a ſubſtance, that the malt is ſaid to be glaſſy. The particles which are thus hardened will not diſſolve, or but in ſmall proportion: ſo that they frequently occaſion an almoſt total want of extract, which, in the phraſe of the art, is termed ſetting the griſt.

The goodneſs of malt may be known by the following marks. Bite a grain of it aſunder, and if it taſtes mellow and ſweet, breaks ſoft, and is full of flour from one end to the other, it is good. It has a round body, and if upon putting ſome grains of it in water they ſwim on the ſurface, it is good. Barley ſinks in water, and malt that is not well made will do the ſame: but it is to be obſerved that this is not an invariable proof, becauſe if the malt be broken, or in the leaſt cracked, it will take in water, and ſink. Malt that is rightly made will not be hard, but of ſo mellow a nature, that if drawn over an oak board, acroſs the grain, it will leave a white line upon the board, like a mark of chalk. Its ſmell alſo may be conſulted; for malt, though otherwiſe good, may have contracted an ill ſcent from the fuel, or from the water uſed in the ſteeping.

Before malt is ground, it ſhould be freed from the tails and duſt, which would otherwiſe heighten the colour of the wort, render the liquor muddy, and give it a bad taſte, which could not afterwards be got rid of. The cylindrical ſieve will be of excellent uſe for this purpoſe.

The malt muſt be broken, in order to its communicating its virtue to the water. If it be ground too ſmall, its flour will mix too freely with the water, and cauſe the wort to run thick. Many are of opinion that the beſt way is only to crack it, ſo that none of the grains may come out whole: for the intent is, that the water ſhould draw out an extract, but not be mixed with the mealy part, in the manner of paſte or gruel. Some think that malt is better ground by a ſtone mill, than by a ſteel one, becauſe the former bruiſes it, and the latter only cuts the grains.

After the malt is ground, it ſhould lie ſome time to mellow, in a cool room, where no ſun comes. The time

time for this is different, according to its kind. Brown malt may be ground at from three to fourteen days before it is uſed, in order that the corn, which is rendered uncommonly hard by that degree of drying, may be gradually ſoftened by the moiſture in the air; by which means it will become the more ſoluble in water. The pale malts require only one or two days. After lying thus in the air leſs maſhing ſuffices, the ſtrength of the malt is more perfectly extracted, and the beer will be conſiderably ſtronger than it would be with the ſame quantity of malt taken directly from the kiln. Care muſt be taken that it get no damage in lying.

Mr. Combrune obſerves, that malt imbibes moiſture more readily by being ground and expoſed for ſome time to the air, than it does when whole; and that as the dampneſs thus abſorbed by the grain is in reality ſo much cold water, malt which has been long ground requires to be maſhed with hotter water than it would otherwiſe be neceſſary to uſe.

To know whether malt has been mixed with barley unmalted: Take a bowl of water and throw into it a couple of handfuls of the malt; give it a gentle ſtirring, and the barley which has not been malted will ſink to the bottom; the half-malted grains will have one end ſunk, being in a vertical poſition; and the good malt will ſwim.

MALT DUST. This is an excellent manure ſown as a top-dreſſing on wheat in the ſpring, eſpecially on harſh, clayey and ſtubborn ſoils.

MALT WORM. A cankery ſore in the hoof of a horſe ſo called.

MAMMEE. This is a very large tree growing both in Aſia and the Weſt-Indies to the height of 60 or 70 feet.

Both theſe trees in their native ſoil produce abundance of fine fruit, as large as Catharine peaches, of a yellowiſh green colour, and ſaid to be of a delicate flavour.

In this country they require to be continued conſtantly in the ſtove, ſo muſt be kept always in pots, and placed in that conſervatory, where they will cauſe a fine variety all the year with their large ſplendid foliage.

Their propagation is by ſeed, which arrives from America, &c. in ſpring. Sow it in ſmall pots of light rich earth, and plunge them in the bark-bed, where they will ſoon come up; give gentle waterings, and about Auguſt tranſplant them into ſeparate pots a ſize larger, plunging them in the bark-bed, and give ſhade and water till freſh rooted.

MANCHINEEL TREE, [*Hippomane.*] This is a very large tree in its native ſoil, almoſt equalling the oak in ſize; the wood is much eſteemed for making of cabinets, book-caſes, &c. being very durable and taking a fine poliſh; it is alſo ſaid that the worms will not eat it. As theſe trees abound with a milky cauſtic juice, they make fires round their trunks before they are felled to burn out their juice, otherwiſe thoſe who fell them would be in danger of loſing their ſight, by the juice flying in their eyes: for wherever this falls upon the ſkin, it will raiſe bliſters, and if it comes upon linen it will immediately turn it black, and on being waſhed will come in holes. It is alſo dangerous working of the wood after it is ſawed out; for if any of the ſaw-duſt happens to get into the workmen's eyes, it cauſes inflammations, and the loſs of ſight for ſome time; to prevent which, they generally cover their faces with fine lawn during the time they are working the wood.

This tree hath a ſmooth browniſh bark, the trunk divides upwards into many branches, garniſhed with oblong leaves ending in acute points, ſlightly ſawed on their edges, and are of a lucid green, ſtanding on ſhort foot-ſtalks. The flowers come out in ſhort ſpikes at the end of the branches, being of both ſexes in the ſame ſpike, but having no petals they make but little appearance; theſe are ſucceeded by fruit about the ſize and of the ſame ſhape as the golden pippin, turning of a yellow colour when ripe, which has often tempted ſtrangers to eat of them to their coſt, for they inflame the mouth and throat to a great degree, cauſing violent pains in the throat and ſtomach, which is dangerous unleſs remedies are timely applied.

The inhabitants of America believe it is dangerous to ſit or lie under theſe trees, and affirm, that the rain or dew which falls from the leaves will raiſe bliſters; but it is very certain that unleſs the leaves are broken, and the juice of them mix with the rain, it will do no injury.

These plants are preserved in some of the curious gardens in Europe, where they can never be expected to rise to any great height, for they are too tender to live in these northern countries but in stoves; they rise easily from seeds, provided they are good.

MANDRAKE, [*Mandragora.*] This plant grows naturally in Spain, Portugal, Italy, and the Levant, but is preserved here in the gardens of the curious. It hath a long taper root, shaped like a parsnip, which runs three or four feet deep in the ground; it is sometimes single, and at others divided into two or three branches, almost the colour of parsnip, but a little darker; from this arises a circle of leaves, which at first stand erect, but, when grown to their full size, spread open, and lie upon the ground; they are more than a foot in length, and four or five inches broad in the middle, of a dark green colour, and a foetid scent. These rise immediately from the crown of the root, without any foot-stalk; between them come out the flowers, each standing upon a separate foot-stalk about three inches long, which also arise immediately from the root; the flowers are five-cornered, of an herbaceous white colour, spreading open at the top like a primrose, having five hairy stamina, with a globular germen in the center, supporting an awl-shaped style. The germen afterward turns to a globular soft berry lying upon the leaves, which, when fully grown, is as large as a nutmeg, of a yellowish green colour when ripe, full of pulp, in which the kidney-shaped seeds are lodged. It flowers in March, and the seeds are ripe in July.

MANGE. A well-known filthy disease in a horse, which makes him rub against every thing he can lean on, and if other horses that are with him are not removed, they are subject to catch it from him. It is known by the hair staring, and in many places peeling away from the skin, on which a scurf will arise. This disorder is occasioned by over-heats and colds, hard riding, or labour, whereby the blood is corrupted, or by feeding upon unwholsome meat. To cure this disagreeable distemper, we would recommend the following method:

"Take of tobacco stalks half a pound, tobacco dust one pound, black soap half a pound, allum and bay salt each a quarter of a pound, green broom a large handful, and stone lime about the size of a hen's egg; boil all these in two gallons of urine, till half be consumed; when almost cold, stir into it an ounce of flour of brimstone or stone brimstone in powder."

Cut the hair off the mane and tail, and then curry them all over where the distemper is, till the blood is almost ready to start; then take a piece of flannel or woollen cloth, and daub the horse all over with the liquor a little warm, if the weather is not very hot.

This quantity will dress the horse all over twice; the second application may be two days after the first; or if the disorder is very bad, the next day following. This remedy will do for dogs, &c. *See* LEPROSY.

MANGER. A wooden trough in which horses corn is put. Mr. Williamson advises a rack and manger for cows in the following words:

"I would by all means advise every farmer to have a rack and manger for his cows, with a loft over for hay, from whence it may be put down as for horses; and he will find that they will eat with more satisfaction, and make infinitely less waste, than by the common method of laying it on the ground; the manger should be about seven or eight inches from the ground, and always be kept very clean by the cow-boy."

MANGROVE TREE, [*Rhizophora.*] This is a West-India tree, of which there are several species, but they will not grow upon land.

MANGROVE GRAPE. See *Seaside* GRAPE.

MANGO TREE, [*Mangifera.*] This plant grows naturally in many parts of India, and has by the Portugueze been transplanted to the Brazils and other countries, where it grows to a large size; the wood is brittle, the bark rough when old; the leaves are seven or eight inches long, and more than two broad; the flowers are produced in loose panicles at the end of the branches; these are succeeded by large oblong kidney-shaped plumbs.

This fruit, when fully ripe, is greatly esteemed by the persons who reside in the countries where it grows, but in Europe we have only the unripe fruit brought over in pickle; however, the account

account given of the ripe fruit by thoſe who have taſted it, has excited the curioſity of many perſons to procure young plants for their gardens in Europe, but hitherto without effect.

MANDOL, *or* MANIHET. *See* CASSADA.

MANNA. The juice of certain trees of the aſh kind (growing in Italy and Sicily) either naturally concreted on the plants, or exſiccated and purified by art. There are ſeveral ſorts of manna in the ſhops. The larger pieces, called flake manna, are uſually preferred; though the ſmaller grains are equally as good, provided they are white; or of a pale yellow colour, very light, of a ſweet not unpleaſant taſte, and free from any viſible impurities. Some people injudiciouſly prefer the fat honey-like manna to the foregoing: this has either been expoſed to a moiſt air, or damaged by ſea or other water. This kind of manna is ſaid to be ſometimes counterfeited by a compoſition of ſugar and honey, mixed with a little ſcammony: there is alſo a factitious manna, which is white and dry, ſaid to be compoſed of ſugar, manna, and ſome purgative ingredient, boiled to a proper conſiſtence; this may be diſtinguiſhed by its weight, ſolidity, untranſparent whiteneſs, and by its taſte, which is different from that of manna.

Manna is a mild, agreeable laxative, and may be given with ſafety to children and pregnant women: nevertheleſs, in ſome particular conſtitutions, it acts very unkindly, producing flatulencies and diſtenſion of the viſcera: theſe inconveniences may be prevented by the addition of any grateful warm aromatic. Manna operates ſo weakly as not to produce the full effect of a carthartic, unleſs taken in large doſes, and hence it is rarely exhibited in this intention by itſelf. It may be commodiouſly diſſolved in the purging mineral waters, or joined to the cathartic ſalts, ſena, rhubarb, or the like. Geoffroy recommends accuating it with a few grains of emetic tartar: the mixture is to be divided into ſeveral doſes, each containing one grain of the emetic tartar: by this management, he ſays, bilious ſerum will be plentifully evacuated, without any nauſea, gripes, or other inconvenience. It is remarkable, that the efficacy of this drug is greatly promoted, (if the account of Valliſnieri is to be relied on) by a ſubſtance which is itſelf very ſlow of operation, caſia.

MANURE. This term compriſes all ſorts of dungs, compoſts, and other materials proper or uſed for the improvement of lands. *See* DUNG, COMPOST, &c.

Manure, therefore, is neceſſary to all ſoils, to repair them when exhauſted by the growth of vegetables, and to cure the defects of ſoils naturally bad, ſuch as to enrich and fertilize very poor land; to render very ſtrong or ſtubborn land more light, looſe, and pliable; and to render very light, looſe, dry ſoils, more compact and moiſt: and wet land dryer, &c. Strong moiſt land is the moſt improved by light manures, to open and looſen it: very light land by the more heavy and moiſt ſort of manure; and wet land by dry light compoſts. Some ſoils require manure annually, others but once in two or three years.

All ſorts of horſe-dung, neats-dung, hogs-dung, farm-yard mulch, or a mixture of all or any of theſe together, ſuits almoſt all ſorts of land; or a compoſt of any or all of theſe, and chalk, lime, earth, mud of ponds and ditches, cleanſings of ſtreets, aſhes, rotten tanner's bark, rotten wood, and ſaw duſt, rotten vegetables, &c. or ſuch of any of theſe materials as can be had, and formed into a compoſt-heap to rot together, make a good manure, both for corn and graſs-land.

Rotten tanner's-bark alone, or in compoſt, is good manure for ſtrong, cold, corn-land; and will alſo ſuit graſs, if applied the beginning of winter, for the rains to waſh it into the ground.

Rotten wood, and rotten ſaw-duſt, is very proper for ſtrong land.

Rotten vegetables, ſuch as all ſorts of weeds, and the refuſe of the kitchen garden, &c. laid in heaps, and if mixed with mud or any earthy ſubſtance, and the whole lie to rot, they will make a tolerable good manure for corn-land.

Green fern mowed down and laid in heaps to rot, is alſo uſed as manure.

Marle, chalk, lime, &c. properly prepared, either alone or in compoſt, are greatly uſed in many places as a dreſſing for corn-land.

Sea-ſand and ſhells, &c. being full of ſalts, are ſometimes uſed as manure for

for ſtrong clayey and ſtubborn loamy ſoils.

Sea-weed is likewiſe employed as manure, and being full of ſalts, greatly improves corn-land.

Sea. Aſhes of all ſorts prove excellent manure, eſpecially to all ſtrong cold or moiſt land; but coal aſhes are ſuperior to thoſe of wood, or any other kind of vegetables; the farmers in the counties round London have experienced this, and they fetch them from that city by cart and waggon-loads, twenty or thirty miles diſtant; for in London they in general uſing coal-fuel, prodigious quantities of aſhes are daily made, and collected in carts and carried to the aſh-hills in the environs of the city; where numbers of people are employed in ſifting them, and ſell the ſiftings by the ſack or load to the farmers for manure; alſo to the brick-makers for tempering their loam or brick-earth.

Bones of animals are alſo uſed as manure for ploughed-land, where they are to be had in due quantities, as about London and other great cities.

Soot is alſo uſed as manure to ſprinkle thinly over corn-land.

Sea Malt-duſt, containing a natural heat and ſweetneſs, proves an eligible manure to moiſt ſorts of land, but more particularly to ſtubborn, clayey, and ſour harſh ſoils.

Cleanſing of ſtreets laid in compoſt-heaps with horſe-dung, &c. makes excellent manure both for corn and graſs-ground.

All manure for ploughed or digged land, ſhould be applied at the time the ground is to be tilled, and not ſpread about any long time before it is ploughed in, eſpecially in hot dry weather, which would exhauſt the ſalts, and other enriching particles; obſerving however, where any hard ſubſtances, as marle, chalk, ſhells, &c. are uſed for manure, it is proper to ſpread them abroad ſome conſiderable time, expoſed to the ſun, rains, and froſt, to pulverize, before they are plouhged into the ground.

The manuring graſs-land ſhould generally be performed in autumn, about Michaelmas, or a little before or after, and not in the heat of ſummer, as is often practiſed, whereby the ſun's heat greatly exhauſts its moiſture and goodneſs; but when done in autumn, the rain ſoon waſhes the enriching particles into the ground, to the great benefit of the graſs, and encreaſe of the future crop.

MAPLE TREE, [*Acer.*] The ſpecies are, 1. The greater maple or ſycamore tree; this is a large growing tree, and adapted to encreaſe the variety in our woods and fields. It is very proper, if kept down, for underwood, becauſe it ſhoots very faſt from the ſtool, and makes excellent fuel. There is no tree more proper than this to form large plantations near the ſea; for the ſpray, which is prejudicial to moſt trees, ſeems to have no bad effect upon it. 2. The ſmall or common maple; this does not grow to ſuch a large ſize as the ſycamore, though its timber is of greater value. The timber with us is deemed excellent, and is uſed for ſeveral curious purpoſes, ſuch as muſical inſtruments, inlayings, &c. For the making of turnery ware alſo, ſuch as diſhes, bowls, trays, &c. it is ſuperior to moſt other wood. 3. The Virginia aſh-leaved maple: This is a quick grower, arrives to a large timber-tree, and is admirably adapted to cauſe a beautiful variety in our woods, though is not proper to be planted in expoſed places, the branches being ſubject to ſplit when attacked by violent winds. The leaves are of a pale green colour, moderately large, and fall off pretty early in the autumn. The timber is extremely uſeful for turners; and like the Norway maple, ſerves all the purpoſes of the ſycamore. It is propagated by ſaving the keys, which this tree, though a native of Virginia, perfects in this country. It is alſo propagated by layers, or by planting the cuttings, in a moiſt ſituation, in autumn. 4. The Norway maple with plane-tree leaves: this maple will grow to a great timber-tree, and therefore ſhould be raiſed to encreaſe the variety in our plantations. The leaves are of a ſhining green colour, look beautiful all ſummer, and die to a golden yellow in the autumn. This tree perfects its ſeeds with us; ſo that it may be raiſed in the ſame manner as the ſycamore, from the keys. It may alſo be propagated by layers and by cuttings; which if planted in a moiſt ſoil in the autumn, will grow. 5. The ſcarlet flowering maple of Virginia; of this there are two ſorts, Virginian ſcarlet-flowering maple,

maple, and Sir Charles Wager's maple. Both of these are propagated for the flowers, which are of a scarlet colour, and come out early in the spring. 6. The American sugar maple; this has some resemblance to the Norway maple when the plants are young; but as they grow up the leaves are more deeply divided, and their surfaces less smooth, so that they are easily distinguished From this tree the inhabitants of North-America make a very good sort of sugar, in large quantities, by tapping the trees early in the spring, and boiling the juice, which, by the usual process, is converted into sugar. 7. The mountain maple of America: the body of this tree is slender, and is covered with a whitish bark. It sends forth several red branches, and grows about fifteen feet high. 8. The Italian maple: this is very common in most parts of Italy, but particularly about Rome, where it is one of the largest trees of that country, and is esteemed for the size of the leaves, which are large, affording a great shade: so that these trees are frequently planted by the sides of roads and near habitations. 9. The Montpelier maple; the Montpelier maple grows to about twenty feet high, and is a very beautiful tree. 10. Cretan maple with three entire lobes to the leaves, which are somewhat hairy on their under-side: this grows to about the height of the former. The leaves are downy, composed of three lobes, and grow opposite to each other on long downy foot-stalks. The flowers come out in the spring, and are very seldom succeeded by good seeds in England.

Maple and sycamore are best raised from seed; but as the seeds of the foreign kinds do not ripen in this country, they should be procured from abroad. In a cool and shady part of the seminary let beds of fine mould be marked out about four feet in breadth, and with proper alleys. Upon these let the foreign seeds be regularly sown, sifting over them about half an inch of the finest mould. When the plants come up, they should be kept clean from weeds, and frequenly watered; and this work must be duly attended to all summer. The spring following, the strongest may be drawn out, and planted in the nursery, in rows two feet asunder, and at the distance of a foot from each other in the rows, leaving the others in the seminary to gain strength. The succeeding spring they must receive the same culture; and they may remain in the nursery, with no other trouble than keeping the ground clean from weeds in the summer, digging between the rows in the winter, and taking off all strong and irregular side shoots, till they are planted out for good.

Notwithstanding these are the general laws of raising all the species of maple from foreign seeds, the culture varies with respect to the scarlet flowering kind, when the seeds are gathered at home. This species brings its seeds to maturity the beginning of June in our gardens. They should be then gathered, and after having lain a few days to harden, they should be sown in beds of the finest mould, and covered only a quarter of an inch deep. The beds should be hooped, and covered with mats in scorching weather; but when it is rainy and cloudy, they should always be uncovered. In about a month or six weeks many of the plants will appear; but the far greatest part of them will not come up till the following spring. When the summer-plants first shew themselves, they should hardly ever feel the full beams of the sun. The seeds must be constantly covered with the mats in the day-time, unless cloudy and rainy weather happens, when they should always be uncovered; during the night no mats must be put over the plants, that they may have all the benefit of the refreshing dews, air, and cooling showers. When these latter do not fall, watering must be duly attended to; and this is all the trouble they will require for the first summer in the seed-bed. The summer following they may be exposed to all weather, when they will only require being kept clean from weeds, and watered in dry seasons. The succeeding spring the strongest may be set out in the nursery-way, like the former seedlings.

By layers also all the species of this genus may be propagated; though that method is never practised for the common maple and the sycamore. The young shoots may be laid down in the autumn, winter, or early in the spring. By the autumn following they will have struck root, and become good plants;

when the ſtrongeſt ſhould be ſet out in the places where they are to remain; whilſt the weakeſt may be planted in the nurſery, like the ſeedlings, for a year or two, to gain ſtrength.

Maples raiſed from ſeeds will grow faſter, and arrive at a greater height, than thoſe raiſed from layers; but they will not produce ſuch quantities of flowers; which makes the latter method more eligible for thoſe who want theſe plants for a low ſhrubbery.

By cuttings alſo theſe trees may be propagated: but this method is chiefly practiſed on the aſh-leaved and Norway maples, which more readily take root this way. The cuttings ſhould be the bottom parts of the laſt year's ſhoots: they ſhould be taken off early in October, and planted in rows in a moiſt ſhady place. The ſpring and ſummer following they muſt be duly watered as often as dry weather makes it neceſſary, and be kept clean from weeds. By the autumn they will be fit to remove into the nurſery; though, if the cuttings are not planted too cloſe, they may remain in their ſituation for a year or two longer, and then be ſet out for good, without the trouble of previouſly planting them in the nurſery.

Maples may likewiſe be propagated by budding, grafting, and inarching: but the other methods being more eligible, theſe are never practiſed, except for the variegated ſorts, eſpecially the large broad-leaved kind.

In order to propagate the varieties by budding, let ſome plants of the common ſycamore, one year old, be taken out of the ſeminary, and ſet in the nurſery in rows a yard aſunder, and the plants about a foot and half diſtant from each other in the rows: let the ground be kept clean from weeds all ſummer, and be dug, or as the gardeners call it, turned in, in the winter; and the ſummer following the ſtocks will be of a proper ſize to receive the buds, which ſhould be taken from the moſt beautifully ſtriped branches. The beſt time for this work is Auguſt, becauſe, if it is done earlier, the buds will ſhoot the ſame ſummer; and when this happens, a hard winter will infallibly kill them. Having, therefore, budded your ſtocks the middle or latter end of Auguſt, with the eyes or buds fronting the north, early in October take off the baſs matting, which before this time will have confined the bark and pinched the bud, but not ſo as to hurt it much. Then cut off the ſtock juſt above the bud, and dig the ground between the rows. The ſummer following keep the ground clean from weeds; cut off all natural ſide-buds from the ſtock as they come out; and by autumn, if the land be good, your buds will have ſhot forth, and formed themſelves into trees five or ſix feet high. They may be then removed into the places where they are deſigned to remain; or a few of them only may be drawn out, leaving the others to be trained up for larger ſtandards, to ſerve for planting out in open places, or ſuch other purpoſes as ſhall be wanted.

MANOR. An ancient royalty or lordſhip, with demeſnes, &c.

MARACOCK. Paſſion flower.

MARCHES. The bounds between England and Wales, or England and Scotland.

MARGUERITE. Daiſey.

MARE. The female of the horſe. *See* HORSE.

MARKING *Sheep*. This is done with a marking iron, either of the letters of the owner's name, or of ſome other device, dipped in hot pitch or tar, and clapped on ſome part of the ſheep, to make them be known; ſome mark them with ruddle; but both theſe methods are liable to great objection: the pitch and tar ſpoiling a great deal of wool, and the ruddle waſhing out.

MARJORAM, [*Origanum.*] The ſpecies, 1. Pot or common marjoram. 2. Winter ſweet marjoram. 3. Annual ſweet marjoram. 4. Dittany of Crete. 5. Marjoram of Mount Sipylus. 6. Cretan marjoram. 7. Smyrna marjoram. 8. Egyptian marjoram.

The firſt three ſorts have great merit as culinary aromatics for the kitchen-garden, and may alſo be introduced in the pleaſure-ground, in patches in the open borders to increaſe the variety, and for noſegays, &c. the variegated perennial marjorams in particular have a pretty effect; they are all eaſily raiſed from ſeed in the open ground in ſpring, and the perennial ſorts alſo by dividing the roots; all of which ſorts, both perennials and annuals, when deſigned for the kitchen garden, ſhould generally be diſpoſed in four feet wide beds, the perennials in rows a foot aſunder, where they will abide for years; and the

the annual ſort being always raiſed from ſeed annually, it may either remain where ſowed, or the young plants may be planted out in rows ſix or eight inches diſtant; and when deſigned to have any of the ſorts in the pleaſure gaarden, diſpoſe them about the garden in patches.

The laſt five ſpecies, being exotics from warm countries, require ſhelter here in winter, ſo muſt be potted and placed in the green-houſe collection, or may be preſerved all winter in a common garden-frame, furniſhed with lights to put on in nights and cold weather.

Their different methods of propagation are: The hardy perennial ſpecies by ſeed and by ſlipping the roots; the annual ſort only by ſeed annually; and the five green-houſe kinds principally by ſlips and cuttings.

Sow the ſeed in ſpring, March or April, in any bed or border of light earth, and rake it in with a light hand; they will ſoon come up, and when the ſeedlings are a few inches high, plant them out in moiſt weather, in rows ten or twelve inches diſtant, finally to remain, giving occaſional waterings till freſh rooted.

Autumn is the beſt ſeaſon for parting the roots, though it may alſo be performed ſucceſsfully in ſpring. Having ſome large plants, ſlip or divide the roots into ſlips, each furniſhed with fibres; which plant in rows, as directed for the ſeedlings, giving occaſional waterings, and they will readily grow, and become good buſhy plants by autumn following.

Their general culture is the keeping them clean from weeds; every autumn cut down the decayed ſtalks, looſen the earth between the plants, at the ſame time digging the alleys, ſpread a little of the earth over the ſurface of the beds.

When any are intended for the pleaſure-garden, remove them in autumn or ſpring, with little balls of earth about their roots, and plant them where wanted.

All the green-houſe kinds are propagated by ſlips or cuttings of the young ſhoots in ſpring and ſummer. If you plant them early, let it be in pots, and plunge them in any hot-bed, they will readily take root; but if in ſummer, they may be planted either in pots, of in a ſhady border. In either mode of planting, give water directly, which repeat as occaſion may require in moderate quantities; and if thoſe that are planted in the open air, either in pots, or in the full ground, are covered down with hand-glaſſes, it will facilitate their rooting; but the glaſſes muſt be removed when the plants begin to ſhoot at top. The plants in either way will be rooted the ſame year, and towards autumn may be potted off ſeparately into ſmall pots, and afterwards managed as other hardy green-houſe exotics.

MARLE. Marle is a treaſure to the farmer whereſoever it is found, and there is no country in the world where there is more of it than in England, yet there are few places in which it is known to lie. The induſtry of thoſe who deal in huſbandry has not been in any thing ſo ſlack, as in the ſearching after this valuable commodity. See Mud.

We ſhall endeavour to awaken them to a ſenſe of their intereſt, by ſhewing its value: and to aſſiſt them in the ſearch after it we ſhall endeavour to make it known to them by ſight and feeling in its ſeveral appearances, for theſe differ greatly. After this, to prevent miſtakes in the application, the ſeveral kinds of marle ſhall be diſtinguiſhed, and the particular kind of land ſhewn, to which each properly belongs.

In order to the huſbandman's finding marles upon his land, he muſt firſt have ſome knowledge of them. The very fineſt kinds have often been thrown up accidentally in digging on other occaſions, and no one has known them. The fields have languiſhed for want of what they contained in their own bowels through the ignorance of their owner.

Marle is of ſeveral kinds, and differs greatly in appearance; but to him who will carry a general knowledge of it in his head, it may be always known in whatever form it is found.

Marle, like other earths, may be pure or foul: for thoſe beds of matter which lie in the earth are ſubject to mixtures as thoſe on the ſurface, tho' not ſo frequently: and the deeper marle lies, the purer it uſually is.

We ſhall firſt then divide the marles into two kinds, the pure and the mixt. The pure marles all agree in their texture; their difference being only in the degree of hardneſs, and in the colour.

Pure

Pure marle is a ſubſtance not unlike fuller's-earth; it is ſoft and fatty to the touch, it is not tough like clay, nor duſty like ochre, nor ſandy like loam, but is of a tender fine nature, unlike all other ſorts of earths.

When a farmer finds a piece of earth of this kind, whether it be thrown up in digging a well, or by whatever other accident, let its colour be what it will, he may depend upon it it is a marle. In order to be more confirmed, let him throw a piece of it into a baſon of water, and he will find it ſwell like fuller's-earth, and crumble in the ſame manner of itſelf to pieces. The harder and more compact kinds break ſlower, the ſoft and looſe ones quicker, ſome almoſt immediately. But in whatever manner it happens, this joined to the others is a ſure proof that the earth under examination is a marle, and let him who has fallen by chance upon a piece of it, dig in ſearch of the treaſure.

Of the pure marles there are four principal kinds, diſtinguiſhed according to their colours. A white, a yellow, a red, a blue, there is alſo a black, but it is leſs common.

Theſe are to be diſtinguiſhed under the name of pure marles of thoſe colours; for there are foul and coarſer kinds of the ſame colours.

There are found in different places marles of theſe ſeveral colours, varying in their texture and hardneſs; but in general, the white or whitiſh are the ſofteſt and lighteſt, and the blue are the firmeſt and heavieſt. For this reaſon the white is generally uſed for paſture grounds, and the blue for corn lands.

This cuſtom however is not to be eſtabliſhed into a law to the farmer; though in thoſe counties where they have choice, they uſe the ſofteſt marles for paſture, becauſe they diſſolve moſt freely: and the harder for ploughed lands, where they are more aſſiſted by tillage. The farmer who has either of theſe kinds, may uſe it indifferently on both occaſions, in this manner.

If it be the blue firm kind, or any of the compact ſorts, let him lay it upon his corn land early in the ſeaſon, that the weather may mellow it before the laſt ploughing: if it be for paſture ground, let him in the ſame manner lay it on in time, ſpreading it thin. If it be the white, or any other of the looſe and crumbly kinds, it need not be laid on either till late, becauſe it breaks and diſſolves almoſt as ſoon as it is expoſed to the weather.

The colour of marle is no certain proof of its compact, or crumbly nature; but in general, the blue is firmeſt, the white ſofteſt, and the red and yellow are of a middle degree between both.

Thoſe already named are the richeſt and fineſt of the marles: and as all mixture debaſes their value, among the other kinds, which we ſhall diſtinguiſh by the name of impure or mixed marles, the moſt impure are conſtantly of the leaſt value. Theſe mixed marles differ not only in colour, but in their very nature, according to the ſubſtances which have got in among them. Their colour is no general mark of diſtinction, but they may be very well arranged under ſeparate heads, according to the ſubſtances of which they partake. Theſe being ſand, clay, loam, or ſtone, they may be conſidered as ſandy marles, clayey marles, loamy marles, and ſtony marles: and among theſe laſt are alſo to be comprehended ſome which have at firſt the hardneſs of a ſtone from their own nature and compoſition, though they have not a particle of real ſtone in them.

Many marles alſo, beſide theſe natural earths and ſtony matter, contain great quantities of ſea-ſhells which are preſerved in them in a ſingular manner; for inſtead of being petrified, or rendered hard, they are made brittle, and ſeem as if they had been calcined. Theſe ſhells are far from injuring the marle in its improving quality; they on the contrary, are found to encreaſe that virtue.

There are of theſe ſeveral kinds of all the before-mentioned colours, but greyiſh or yellowiſh are the moſt frequent. The ſandy kinds are the richeſt of theſe impure ones; and they are fitteſt for ready uſe, for they break to pieces in the hands eaſier than any others, and crumble the ſooneſt of any with the weather. In a proper application theſe may be accounted of equal value with any, for on clayey lands the very ſand which is contained in them is uſeful.

The loamy marles are the next in value among theſe to the ſandy, for they break eaſily with the weather; but in theſe as the former, a great deal

of the advantage arising from the use of them will depend upon a proper knowledge of their nature, and their use on a right soil.

The clayey and stoney are inferior to the others: but on some lands the former are preferable to those which are more pure: and amongst the stoney kinds there are some, and they even of the hardest, which, when properly mellow'd by the weather, are inferior to none in Richness. Some of these a large hammer would make no impression upon when first dug up, but with frost, rain and sun-shine, they have in six months time crumbled away to powder.

Some of these, when broken with great labour, and laid upon the lands, have for several months appear'd like so many stones scatter'd over the fields, and seem'd to damage rather than improve them: but after one winter there has not been a piece of any one of the lumps so big as a nutmeg to be found: and the land has been kept in heart eight or ten years by that single dressing.

As the considerate husbandman must see the vast value of Marle, it is natural that he should bethink himself of seeking for it on his own grounds; we shall therefore not only encourage, but assist him in the search.

In the first place he has this to tempt him to examine his land in hope of it, that it is frequent in many places where it is not regarded or even known: and that although so little observed, it is a commodity so naturally and generally the produce of England, that there are few pieces of land of any extent in which one kind or other of it may not be found.

If it be too deep indeed, it may not be worth taking up, but that is seldom the case: it is commonly near the surface.

The several kinds and varieties of marle have been so fully described, that the farmer has all the reason in the world to suppose he shall know it at sight: we shall add to these the soils under which it usually lies.

But prior to this, which beginning without any certain information, is a more random kind of search, we would have him examine well both by report and by the appearance of the ground, whether marle has ever before been dug in his Land, or any where near its borders.

If he hear that it has, let him look narrowly after those broad and shallow delves in the ground which have been before mention'd, for they are certainly the places where the pits were. If he can learn no such thing by report, yet let him see if there be any such hollows in the ground, for tho' less certain, still they are an evidence that something has been dug. It may have been gravel, but marle is more likely.

When he has found any such hollows, let him mind the course wherein they run, for that way probably the vein of marle runs also.

If he find only one such, let him first observe how deep it is; for on this depends the nature of his search, since by this he may guess wether the marle lay low or near the surface.

His business is to try all about the place where the hollow is, for marle. If that hollow be very shallow, let him have holes dug the depth of three feet with a spade; if deeper, let him use an augur, such as they bore the ground with on various occasions. Let him bore in a great many places to the depth of six feet; for if the marle lie deeper than that, 'tis hardly worth his digging; but let him examine strictly every thing the augur brings up within this depth. Let him keep in his mind the various kinds of marle, and if any thing come up that has the least appearance or resemblance of any of those several kinds, let him try it by seeing if it moulders away in a bason of water, if it crackles on being put into the fire; and what effect the sun and air take upon it when it has lain two or three nights exposed.

By these means, if there ever have been marle dug there, and the vein of it continues, he will be sure to find where it runs; and he is then to follow the course of it by the augur, and consider where he can open a pit of it the most conveniently for the general use of his land.

But suppose there be not the least sign upon the ground, or the least account from report that marle ever was dug any where thereabouts; yet this should not discourage him from enquiring if there be any; for there is a time for the discovery of every thing.

In this caſe he muſt firſt have recourſe to what he can ſee upon digging any where. If a well be ſunk at any time upon or near his land, let him look carefully over all the kinds of earth that are thrown up. Nay, if a pond be dug, let him make the ſame obſervations.

Let him examine the ſides of ditches new dug or cleaned; and follow the plough with a careful eye, obſerving if it any where turn up matter different from the ſoil. For marle often is within the reach of the plough.

If he diſcover nothing of the nature of marle in all theſe reſearches, let him have recourſe to the augur, boring in different places, but chiefly in the clayey ſoils, for under theſe the marle oftenett lies.

The mellow earth is the next ſoil that is likely to conceal marle: and after this the loamy earth. It ſometimes lies under gravel, but ſeldom in any great plenty: it very rarely is found under a ſandy ſoil, and then commonly in a thin vein, and at a great depth.

The clayey ſoil not only oftenett has marle under it, but that which lies under this ſoil is uſually of the fineſt kind. The Kentiſh marles generally are covered with a foot or two of tough clay. In general it is the fineſt, pureſt, and richeſt marles the farmer is to expect under a clayey ſoil.

It has been obſerved, the fine black mellow earth of the low lands commonly has under it a bed of tough clay. Sometimes it has a think bed of ſome fine marle, particularly of the reddiſh kind, in the place of the clay; and very often a vein of marle comes between the clay and the mould.

The former is the beſt for the farmer; but if the latter preſents itſelf, let him follow with his augur the courſe of the vein, and he will find it gradually thicken till at laſt it uſually takes the place of the clay. It is here he is to open his marle pit; and he will often fall upon a bed of marle five, ſix, or ſeven feet thick, riſing within a foot and half of the ſurface of the ground.

Sometimes the ſtony marles are found under clay or black mould, but it is more commonly the pure, fatty, and tender ſort: as to thoſe found under ſandy ſoils, they are uſually one or other of the claycy marles, and, with double expence in digging, are not of half the value.

There are ſome parts of Suſſex where a bed of marle comes up within eight inches of the ſurface, and when open'd is found to be ten or twelve feet thick, all of ſome one of the pure and fine kinds: and in Cheſhire, and alſo in Lancaſhire, where the beſt marles often lie under the fine black mould, a bed of blue marle has been within a yard of the turf, down to four yards deep, and they were not then got through the vein.

When the farmer has by the methods already deſcribed found out a vein of marle, and fix'd upon a convenient part of his land for opening of a pit; let him begin by marking out a tolerable large place for the work; and for a proper way for the carts that are to fetch out the marle. A great deal depends upon all this being well ordered, and now is his time for contrivance.

He is then to employ his labourers to clear away, with pick-axe, ſpade, and wheel-barrow, all the ſoil that covers the vein of marle, and when this is done, they are to begin digging it.

The different condition of the marle will now be found, and the neceſſary accidents of treating it. Where it is of the fineſt and tendereſt kinds, they often work with a kind of hoe, and three hoers will tear up as much as four can fill into the carts.

In the clayey kinds they uſe ſpades for digging, and then the diggers muſt be more than the fillers. Sometimes theſe are ſo dry and tough, that the workmen muſt have water brought to them to wet their ſpades; and in other places they are ſo wet, that there muſt be a pump ſet up to keep them dry.

When the marle is got into the cart, it is to be ſhot on the fields; but this in a different manner according to its nature. If it be of the fine ſoft tender kinds, the beſt way is to ſpread it as it is taken out of the cart: but if it be of the ſtoney or other compact kinds, every load had better be ſhot ſeparately, and left in a heap for the whole winter, that the froſt and air may mellow and break it.

There are very few lands that may not be improved by marle, but ſome require

quire it more than others; there are alſo many kinds of marles, as well as many different ſorts of ſoils; and the marles of one kind are fit for certain lands, and thoſe of other kinds for others. A ſtrict regard muſt be had to this, otherwiſe, as already obſerved, the land may be ſpoiled.

In ſome places they have a way of laying on ſuch a quantity of the marle, that they may be ſaid to add a ſoil rather than to improve what was there before. This is the practice in ſome parts of Cheſhire, where they will lay fifteen, ſixteen, or eighteen hundred load of marle upon one of their acres; they will thus in digging and carriage beſtow twelve or fifteen pounds upon marling an acre; and then they will work it with good management twenty or thirty years together.

For the firſt years they plough very ſhallow; they don't cut up more than an inch of the ſoil for fear of burying the marle; ſo going deeper in the following years. This is a particular practice.

In the firſt place, the ſoil which requires marle moſt of all, and which is the moſt improved by it, is the ſandy. The advantage ariſing from this practice upon ſuch lands, is beyond the belief of any who have not ſeen the fact.

The marle which is fit for this land is the clayey kind, and more than all others that browniſh or yellowiſh marle, which looks like real clay in the pit, but is found of ſo different a nature when examined. This marle, or any one of the clayey kind, laid thick upon a ſandy ſoil, gives it at once a body and a richneſs. The clay that is in it binding the light ſoil tolerably together, at the ſame time that the fatty and enriching earth blends itſelf with the whole.

This is the application of marle, in which its virtue is moſt fully ſeen: for by this means land, that before would yield ſcarce any thing, has been known to produce ſuprizing crops; nay, it has been try'd by way of Experiment, to marle one half of a piece of new broke-up ground of this ſandy kind, and leave the other in its natural condition; then both being ſown with the ſame ſeed, the marled part has yielded a plentiful crop, when the other has not ripen'd one ear.

Another great advantage of this practice is, that in years wherein other crops fail, thoſe ſucceed which are on theſe grounds even to admiration. Thus when there comes a dropping ſummer, while a piece of marled ſandy ſoil is in its full vigour, the increaſe is prodigious. Theſe ſeaſons generally hurt the crop on other lands; but they load theſe with as much as can ſtand upon the ground.

But all this time care muſt be taken that the marle be well ſuited to the ſoil; and this is to be done by this rule; the more ſandy the ground is, the more clayey the marle muſt be.

If a raſh young huſbandman, hearing of the great profit that ariſes from laying marle on ſandy ſoils, ſhould without any farther thought lay on one of the pure fat and tender marles before deſcribed upon a very barren ſandy piece of ground, tho' he put on a Cheſhire loading, yet the wet would waſh it in, and the ſand would ſwallow it up in ſuch a manner, that the whole effect would be loſt after all the labour and expence.

Next after the ſandy, the ſoil which receives moſt advantage from marle is the loamy; and this admits the greateſt improvement of all when the ſand in its compoſition bears an over proportion to the clay. Some lands, the ſoil of which was fitter to make bricks than to yield corn, have been ſo improved by marle, that the corn has ſtood like a ſward of graſs at its firſt appearance; and has thriven ſo afterwards, that every ſtalk has come to a due maturity.

The marle for this kind of land muſt be the pureſt and fineſt that can be had. If the farmer ſhould lay on a clayey, or a ſandy marle, he would only increaſe the proportion of one or other ingredient of the natural land, which already made it barren.

All that renders a loamy earth at all fruitful in its natural ſtate is the quantity of mould that is mix'd in it; now a fine marle is of the nature of that mould, only much richer: it blends among the loam, and the firmneſs of the loamy ſoil holds it till it has yielded all its virtue.

Of all the kinds of marle, that which agrees beſt with a loamy ſoil, is the blue, pure, and tender marle. After this the beſt is the yellow: but any

marle that is light and free from mixture will anſwer the purpoſe.

The ſtony marles have been try'd in ſome counties upon their loamy ſoils with tolerable good ſucceſs; particularly that ſort they call ſhale marle, laid on a tough loamy ſoil, abounding naturally too much with clay.

This has ſucceeded but poorly at firſt. The firſt year ſcarce at all, the ſecond ſomewhat better, and the third and fourth beſt of all. The pure marle is very much preferable for this ſoil to the ſtony. The farmer may do well to uſe any of the ſtony kinds when he cannot get the other ſort in the neighbourhood, and he will reap conſiderable advantage from it; but when he can have his choice, the pure marle is preferable for this land by many degrees.

Some of theſe ſtony marles, not of the hardeſt kind, have been uſed on ſandy ſoils, but without any great ſucceſs.

The practice of marling lands is founded upon reaſon; and that, as well as experience, will ſhew in what manner it ſhould be done. The pure marles are all fatty; the mix'd kinds are either clayey, ſandy, loamy, or ſtony; now upon conſidering this, the application is eaſy.

After ſandy and loamy ſoils, that which receives moſt advantage from marle is mellow earth: this wants improvement leſs than any other kind, but the proper uſe of marle adds to its fertility; and there is this farther advantage, that there is ſcarce any kind of marle whatſoever but may be uſed to it: but ſtill there are ſome from which it has more benefit than others.

Ploughed land, meadow, & paſture, when they have this mellow earth for their ſoil, equally receive good from marle. As to graſs lands, only the pure marles ſhould be uſed to them, becauſe they waſh in readily, and don't lie about in clots or lumps upon the ground. For plough'd lands of this ſoil, any of all the kinds of marle may be uſed with benefit. If they be of the clayey ſort, they break in with ploughing after a little time; if loamy, they blend ſo much the ſooner; if they be of the ſtoney kind, it takes time for the weather to divide them, but they do very well at laſt; and finally, if they be of the pure, or of the ſandy kind, they break with the firſt dreſſing, and waſh in with the rains immediately.

As to chalkey ſoils, marle is not the manure moſt ſuited to them of all others, becauſe marle is itſelf in ſome degree of a chalkey nature: nevertheleſs, it is to be uſed with prudence to good purpoſe.

Gravelly ſoils have the ſame advantage from marle as the ſandy, and one reaſon of this is, that they always have ſand among the gravel. Theſe let all other manures be waſh'd through them by the firſt rains, but the marles of a proper kind remain in them. They not only enrich thoſe lands by their own mellowneſs, but they give them a firmneſs that will make them hold other dreſſings. Dung laid on a looſe gravelly ſoil is loſt and ſwallow'd up without any benefit, but dung upon ſuch a land that has firſt been dreſſed with marle, takes the ſame effect as upon other ſoils.

In this, as in all the other inſtances, care muſt be taken to ſuit the marle to the ſoil; if a pure marle were uſed, it would be waſhed through quicker than dung; and if a ſandy marle were choſen, the marley part of that mixture would be waſh'd down through the ſoil, and only the ſand that was among it would remain. This could be no improvement to a ſoil already too ſandy.

The proper marle for a gravelly ſoil is the clayey ſort. This is the only kind that is proper; and this never fails of giving the greateſt advantage.

Laſt of all, we come to ſpeak of the clayey ſoils, which are in general ſuppoſed to be improper for marling to a proverb. Every common farmer can repeat what is retailed from one to another through all the common writers on huſbandry, and can tell his ſon,

He that marles Clay,
Throws all away.

And this he thinks he has two ſubſtantial reaſons for believing to be true, becauſe it is verſe; and becauſe it is in print. But let not the reaſonable huſbandman be frighted out of his profits by rhymes.

It may be poſſible enough to throw away coſt and labour by laying an improper ſort of marle upon a clayey ground;

ground; and the ſame may be as truly ſaid of any other. But the buſineſs of the preſent enquiry is the ſuiting the marle to the land; and when that is obſerved, the ſame benefit will follow from the uſe of it on theſe, as on all other ſoils.

Excepting the clayey marles, there is no kind of them but is good on clay grounds. In the firſt place, all the pure marles being well worked in by the plough, blend with the ſoil, and looſen and enrich it. The ſtoney kinds are kept on or near the ſurface till they mellow and break, and the firmneſs of the ground takes in all their benefit: the loamy marles, if there be too much clay in them, are to be rejected as approaching to the nature of the clayey kind, but if otherwiſe, they are excellent, as they approach to the nature of the ſandy ones. Theſe laſt-mentioned are for clayey ſoils the beſt of all, for they conſiſt only of a fine fatty marle and ſand, and they act doubly upon the clay, at once looſening and enriching it. As ſoon as they are laid on, they break and crumble to pieces; for the ſandy marles are the brittleſt of all the kinds; and thus ſeparated, the ſand gets into the clay, and makes way for the marle, which the rains waſh thoroughly in, and which is then detain'd among it to exert the full effect of its fertility.

He therefore that has a clayey ſoil to manure, and can get at a ſandy marle, has it in his power to raiſe his land to many times its original value.

Having taught the practical farmer to know marle when he ſees it, how to ſeek for it on his own grounds, and in what manner to ſuit the kind to the nature of the land; it remains to inſtruct him in the manner of uſing it.

For this is no little article, and in this the experience of others only can be his guide, comparing their ſucceſs one with another: for not only the practice of a particular county may many times miſlead him; but what has been written under the appearance of advice is too often falſe.

As to the quantity that he ſhall lay upon his land, ſo many errors appear on both ſides, that the truth ſeems hard to hit. Some of the Staffordſhire farmers lay on ſo little, that it ſcarce anſwers any purpoſe. Some of theſe are contented to uſe twenty loads to an acre, and then they have complained that what was written of the profit by marle was not true. In Cheſhire, on the contrary, they bury their land under ſuch loads, that they ſeem to ſow their marle and not their ground.

The medium between theſe practices is the right method; and he who would reap all thoſe advantages that have been declared of marle, muſt follow that courſe. The right uſe of marle is not to put it in the place of the ſoil, but to make a mixture of it with the ſoil, ſo as to raiſe a poor land into the condition of one naturally rich: to do this, a due quantity of the marle muſt be employ'd; and to give a general rule, that ſhould be about a hundred loads to an acre.

The beſt way of ſowing marled land is in general under furrow.

The farmer is not to look for the full effect of this the firſt year, but it will laſt as before obſerved: and the continuance will be according to the nature of the ſoil, and the kind of the marle, ſeven, ten, twenty, or even thirty years.

When the farmer ſees his land that has been marled after fair weather look all over white, as if covered with a hoar froſt, he may conclude it will anſwer his beſt expectations. It is a proof that the marle was good in itſelf; that it has been uſed in due quantity; and that it is well mix'd with the land.

Some have delivered this white appearance as a mark that there is marle in any part of the land where it is ſeen; but marle cannot diſcover itſelf in that manner in its natural beds, unleſs they lie almoſt cloſe to the ſurface. It is therefore of little uſe in that reſpect; but on the lands where it has been laid, when there is this appearance, 'tis certain that it is mix'd and mellow'd in the ground.

If the hard and ſtony kinds are uſed, they muſt be laid on early in the ſeaſon; if the clayey a little later; the loamy may be a little later yet than the clayey: the pure marles of all kinds, and the ſandy marles, are to be laid on very late. In this the farmer's diſcretion will direct him after theſe general rules. The proper timing of the laying on this dreſſing regards its effect for the enſuing year; but the harder kinds with the beſt management will not do much ſo ſoon.

The

The laſt method of laying on the marle is, to ſhoot the ſeveral loads, as they are brought out of the pit, at about equal diſtances one from another; and then to ſpread them all. This will occaſion the ground to be all cover'd with the ſame thickneſs. When it is thus ſpread, it muſt be will mix'd with the ſoil, and all laid ſmooth and level together: and the quicker this is done from the time that the marle be taken out of the bed, provided it be a pure or a ſandy marle, the better; for as theſe crumble to pieces almoſt directly, the buſineſs is to get them mix'd in the ground at once, that they may begin to break among it, and ſo perfectly make one body of the whole: for this is the nature of an improvement by marle.

If the field to be marled lie level, the marle is to be ſpread evenly over it, not thicker in one place than another: but if it lie upon a deſcent, the beſt way is to ſpread the marle half as thick again on the higher part of the field as on the lower, for the rains will waſh enough of its beſt part down to make all equal.

It is impoſſible to give one and the ſame direction for all lands, as to the times of marling, and what may be reaſonably expected from them, for the nature both of the marle and of the ſoil make an endleſs variety; but the farmer will ſee by his crops when the land needs to be refreſhed.

MARCH. The third month of the year;—in which the

Products of the Kitchen-Garden are,

Winter ſpinage, cabbages ſprouts, brocoli, ſavoys, coleworts, red beets, carrots, parſnips and turnips.

Upon the Hot-beds; cucumbers, aſparagus, peas, kidney-beans, purſlain, &c. And, on the warm borders, radiſhes, and young ſallet-herbs; as alſo mint, tanſey, tarragon, &c. if planted upon a moderate hot-bed the beginning of February.

Fruits ſtill laſting: Apples, Loan's pearmain, nonpareil, golden ruſſet, winter pearmain, Pile's ruſſet, john apple, pomme d'api, golden pippin, Kentiſh pippin, Holland pippin, French pippin, Stone pippin, Wheeler's ruſſet, with ſome others of leſs note.

Pears: burgamot bugi, winter bonchretien, double-flowering Royel d'huyver, bezi de chaumontelle, l' amozelle, union or Doctor Uvedale's St. Germain, Parkinſon's warden, cadilliac, with ſome others.

Plants now in Flower.

Some anemonies, crocuſes of ſeveral colours, double ſnow-drop, perſian iris, dens canis, crown imperials, ſpring cyclamen; early, white, blue and ſtarry hyacinths, hepatica's, double pilewort, narciſſus's of ſeveral ſorts; early tulips, violets, primroſes, polyanthuſes, green-flower'd black hellebore, ſennel-leav'd black hellebore, wallflowers, double daiſies, ſome auricula's, dwarf Portugal navel-wort, with many others of leſs note.

Hardy Trees and Shrubs now in Flower.

Almond-tree, double flower'd peach, virginian cherry-plumb, mezereons, ſpurge laurel, laurus-tinus, Spaniſh travellers joy, cornelian cherry, benjamin tree, and ſome others.

Plants now in Flower in the Green-houſe and Stove.

Several ſorts of ficoides's; ſome ſorts of aloes, ſedum arboreſcens, chryſanthemums, anemonoſpermos two or three kinds; germaniums, Aleppo cyclamens, polygala fruteſcens; the ananas or pine-apple, hermannia two ſorts; ilex-leav'd jaſmine, Spaniſh jaſmine, with ſome others.

MARSHY LAND. Marſhy land can be made little uſe of without firſt draining, therefore that buſineſs ſhould be immediately ſet about by a good huſbandman where it is practicable to be done, or where the expences of workmanſhip would not be more than equal to the profit;——for a farmer above all men ſhould be careful never to buy crops too dear, and on the other hand never let a too great covetouſneſs prevent his applying all neceſſary expences to the cultivation and improvement of his land.—A farmer from obſervation will eaſily comprehend the advantage from draining of marſhy land, even from the ditches round his farm, which draw off the water from his land, but are of themſelves inadequate to marſhes or even ſprings—we muſt here have recourſe to underground draining—the beſt materials required for this work, where they can be had at a reaſonable price, are ſtones or brick, laid in ſuch a manner as to give a free paſſage for the current

of

of water; and to prevent the earth filling up the interſtices, heath ſhould be put over the ſtones.——If this be found unhandy, bavins or faggots may be uſed, covered over with heath or even ſtraw; the beſt kind of wood, perhaps, is holly, but where this cannot be had, oak, alder, &c. may be uſed. If there be a tolerable deſcent for the water to run off, the work will be eaſy enough, but if that ſhould not be the caſe, ditches muſt be made ſufficient to anſwer the current of water drawn off. The upper part of the channel ſhould be about 18 inches, and gradually decreaſe to four at bottom, where the ſtones are thrown in: if bricks or ſquare ſtones are placed, they may be rather wider.

Land which was in the marſhy or boggy ſtate may, by draining, be made good land.

If it is in ſuch a ſituation as to be incapable of being drained, it will in general afford a good deal of feed for cows in the ſummer, but will be improper for ſheep.

After the land is drained, it would be an exceeding good method to ſhave off the upper ſurface of the land, and dry it like turf, which ſhould be burned on the ſpot; this operation, which is called burn-baking, would be an excellent manure for the land, and deſtroy numberleſs plants which would be miſchievous in a ſtate of cultivation;—when this was done, we would recommend a crop of oats, and no fear of having a good one, if not ſown too thick; after them a ſummer fallow for turnips, and then the crops in courſe as the land may be adapted beſt for.

This land well managed afterwards will generally turn to very good account, and bear very conſiderable crops for ſome years without manure.

If it cannot be burn-baked; a crop of oats will anſwer very well without, but they will be apt to be very rank in ſtraw and thin in ear.

Beans planted at one ploughing have been known to produce five quarters to an acre; but whatever the firſt crop may be, we would recommend a fallow the next year; not that the land wants reſt, but that it will be neceſſary to deſtroy a number of unprofitable plants and weeds which may have taken faſt hold of the ground. Chalk and lime will be acceptable to this freſh turned up land, which muſt of courſe poſſeſs great degree of ſourneſs from its ſituation; they will correct that ſourneſs, and ſo do good.

The marſh-lands in Lincolnſhire, and many other parts of England, produce a ſort of graſs, which feeds ſheep in a better manner than that of almoſt any other land, in regard to their ſize, and the quantity of wool. The ſheep about Grimſby, and ſome other places in this county, produce ſuch luſty wool, or, as they call it, wool of ſo large a ſtaple, that three or four fleeces uſually make a tod of twenty-eight pounds weight. Several hundred loads of this wool are yearly carried from theſe places to Norfolk, Suffolk, and other parts of the kindom, for the cloth manufacturers. They ſend this in large packs, which they call pockets, each containing about five and twenty hundred weight.

When marſh-lands lie flat, it is neceſſary for the owner to keep all the water he can from them. The ſea-water in particular is to be kept from them as much as poſſible; and this is uſually done at a very great expence, by high banks and walls.

Two things greatly wanting in theſe lands, in general, are good ſhelter for the cattle, and freſh water. The careful farmer may, however, in a great meaſure obviate theſe, by digging, in proper places, large ponds to receive the rain water, and by planting trees and hedges in certain places towards the ſea, where they may not only afford ſhelter for the cattle, but keep off the ſea breezes, which often will cut off the tops of all the graſs in theſe places, and make it look as if mowed.

Theſe lands fatten cattle the ſooneſt of any, and they preſerve ſheep from the rot. It would be of great advantage to them, if there were raiſed, in the middle of every large marſh, banks of earth in a croſs, or in the form of two ſemi-circles, and theſe planted with trees; theſe would ſerve as a ſhelter for cattle, let the wind blow from what quarter it would, and would ſoon repay the expences of making.

There are, in different parts of England, very large quantities of land upon the ſea-coaſts that would be worth taking

king in, though no one has yet thought of doing it. The coasts about Boston, Spalding, and many other parts of Lincolnshire, give frequent instances of this, where the sea falls from the land, so that on the outside of the sea walls, on the owse, where every tide the salt water comes, there grows a great deal of good grass, and the owse is firm to ride upon when the water is upon it.

This owse, when taken in, hardly sinks any thing at all, and they dig the walls from the outside of it, all the earth they are made of being taken from thence, and the sea, in a few tides, filling it up again: and though the sea, at high water, comes only to the foot of the bank, yet once in a year or two, some extraordinary tides go over the banks, though they are ten feet high. These banks are fifty feet broad at the bottom, and three feet at the top; and the common price of making them is three shillings a pole, the earth being all carried in wheelbarrows, and the face towards the sea, where the greatest slope is, being turfed.

MARSH ELDER. *See* GELDER ROSE.

MARSH MALLOW. *See* MALLOW.

MARSH TREFOIL. *See* BUCK-BEAN.

MARTAGON. *See* LILY.

MARVEL *of* PERU, [*Mirabilis.*] There are three species, the common, the long-flowered, and the forked. They all flower in July, continuing in succession until October, very conspicuous and elegant. Having the singularity of being shut all day, and expand towards the evening when the sun declines; hence the inhabitants of the Indies, where they grow naturally, called them Four-o'clock-flowers: their time of opening here, however, depends on the weather, for if cloudy, or that the sun is not very vehement, they often open great part of the day.

The flowers are universally hermaphrodite, and of one funnel-shaped tubular petal, having the lower part a long narrow tube, and the upper spreading.

These plants are naturally perennial in root, which, however, if not preserved here in winter, prove but of one year's duration, but if sheltered from frost and wet during the winter season, they will remain alive, and shoot out strongly again in spring: in this country, however, the plants are commonly considered as annuals; because they rise from seed in the spring, and the same year produce flowers and perfect seed: and if left to nature in the open air, totally perish in winter, at the first attack of frost or excessive wet; but, as aforesaid, if in autumn, when the stalks begin to assume a state of decay, the roots are taken up, and preserved in sand in a dry room all winter, and planted again in spring, they shoot out afresh stronger than at first, and sometimes attain four or five feet stature, with very spreading heads; or if plants growing in pots, having the stems cut down in autumn, and the pots placed in a green-house, or garden-frames under glasses, the roots may also be preserved sound, and will shoot out again in spring as above.

The roots generally become large, tuberous, and fleshy, covered with a dark rind.

All the species are of a tender nature, scarcely able to endure the open air here fully day & night, until May or June; that is, they being raised from seed in spring, chiefly in hot-beds under glasses, continued & forwarded there until the beginning of June, then fully exposed in the borders or pots, they become large branchy plants in July and August; and continue flowering until October or November, till prevented by the cold.

They are all elegant furniture for the principal compartments of the pleasure ground, they being both very ornamental in the large branchy growth, closely garnished with leaves, and by flowering so numerously seem as if entirely covered with flowers, in constant plentiful succession from July till the beginning of winter, as aforesaid.

The roots of all these plants are a grong purgative, and, given in a double quantity, operate equal to the true jalap.

The propagation of all the species is by seed in the spring, either in a warm border, or in a hot-bed; but the latter will forward the plants to considerably the earliest and greatest degree of perfection.

MARYGOLD, [*Calendula.*] The species are, 1. the common marygold with great varieties, being all hardy annuals. 2. Cape leafy-stalked violet and white marygold.

marygold. 3. Naked ſtalked violet and white Ethiopian marygold. 4. Graſs leaved low perennial cape marygold. 5. Shrubby cape marygold. The firſt ſort in its common ſingle flowered ſtate is regarded only as a pot-herb, and its flowers are the only parts uſed; but ſome of the full double varieties and proliferous kinds demand attention alſo as ornamental plants for the beauty of their flowers, which will effect an agreeable diverſity in the common compartments of the pleaſure ground, in aſſemblage with other hardy annuals.

Likewiſe the ſecond and third ſorts, being hardy annuals, will flower abundantly, and form a good variety in the open borders in the months of June, July, and Auguſt.

The fourth and fifth ſorts, graſs-leaved and ſhrubby Calendula, producing many flowers in long ſucceſſion, are alſo worthy of a place in our gardens: but being impatient of froſt, muſt be kept in pots, to have ſhelter of a green-houſe or frame in winter.

All the annual ſorts are propagated by ſowing the ſeeds in beds or borders in March or April, either in the places where they are to remain, or for tranſplanting.

When intended to cultivate the firſt ſort for culinary uſes, many either ſow the ſeeds where the plants are to remain, by broad-caſt on the ſurface, and rake them in, or ſow them in ſmall ſhallow drills a foot aſunder, covering them half an inch deep, and when the plants in either method have leaves an inch broad, hoe them out to twelve inches diſtance; or they may be ſown thick for tranſplantation, and when the plants have four or five leaves, plant them out in rows the above diſtance.

Their flowers being the uſeful parts, they will be fit for uſe in conſtant ſucceſſion from time to time in dry weather, and, after drying them in the ſhade, ſhould be put up in paper bags for uſe.

To propagate the annual kinds in general as flowering plants, ſow them either in patches in the borders, &c. where they are to remain, ſowing four or five ſeeds in each patch half an inch deep, but leave only one of the beſt of the plants in a place; or the plants may be raiſed in a bed or border, and when they have four or five leaves, tranſplant them in the order juſt directed.

They will flower and ripen ſeeds abundantly from June to the end of October.

The fourth ſort is propagated by ſlipping the heads any time from March till September, planting them in pots, which, if plunged in a hot-bed, or in the common earth, and cloſe covered with a hand-glaſs, and occaſionally ſhaded and watered, they will readily grow, hardening them gradually to the air.

The ſhrubby ſort is propagated by cuttings of its branches, in pots of light earth, in April, May, or June, plunging them in a moderate hot-bed, or, in default thereof, plunging them to the rims in the common ground, giving ſhade and water.

African MARYGOLD. *See* AFRICAN MARYGOLD.

Corn MARYGOLD. *See* CORN MARYGOLD.

Fig MARYGOLD. *See* FICOIDES.

French MARYGOLD. *See* AFRICAN MARYGOLD.

Marſh MARYGOLD, [*Caltha.*] This plant grows upon moiſt boggy land in many parts of England: of this there is a variety with very double flowers, which for its beauty is preſerved in gardens, and is propagated by parting of the roots in autumn. It ſhould be planted in a moiſt ſoil and a ſhady ſituation; and as there are often ſuch places in gardens, where few other plants will thrive, ſo theſe may be allowed to have room, and during their ſeaſon of flowering will afford an agreeable variety.

SYRIAN MARUM, [*Marum Syriacum.*] This is a ſmall ſhrubby plant, growing ſpontaneouſly in Syria, Candy, and other warm climates, and cultivated with us in gardens. The leaves have an aromatic bitteriſh taſte; and, when rubbed betwixt the fingers, a quick pungent ſmell, which ſoon affects the head, and occaſions ſneezing: diſtilled with water, they yield a very acrid, penetrating eſſential oil, reſembling one obtained by the ſame means from ſcurvygraſs. Theſe qualities ſufficiently point out the uſes to which this plant might be applied; at preſent, it is little otherwiſe employed than in cephalic ſnuffs. It is propagated by ſlips or cuttings.

Common MARUM, *or* MASTIC. This is a pungent aromatic plant, formerly in eſteem as a medicinal, plant but now not much in uſe.

MASH. For horſes, &c. an infuſion of bran, malt, &c. ſteeped, and given as food when they are indiſpoſed.

MAST. *See* BEECH MAST.

MASLIN CORN. Rye and wheat mixed together. *See Rye.*

MASTICK TREE, [*Piſtacia.*] This is a pretty evergreen, requiring ſhelter all the winter, is propagated by layers in the ſpring, and they will be well rooted by the following autumn.

MASTICK TREE *of Jamaica.* A ſpecies of the Cornelian cherry.

Indian MASTICK TREE, [*Schinus.*] The ſpecies are, the Peruvian and the Braſilian. Both theſe ſpecies are ſhrubby, durable in root, and top, and retain their leaves the year round; and being natives of hot countries, require ſhelter here of a good green-houſe in winter; or, if ſheltered in a ſtove, two or three winters whilſt young, it will be an advantage to the plants; however, they both ſucceed tolerably with the culture of common green-houſe exotics. They being pretty ever-greens, with finely pinnated leaves, merit a place in the collection of our tender exotics, in which they will effect a good variety; let them, therefore, be cultivated in pots of rich earth, and placed among the plants of the above department.

They are propagated by ſeed obtained from abroad, alſo by layers and cuttings.

Sow the ſeeds in the ſpring, in pots of rich earth, and plunge them in a hot-bed, managing them as other tender ſeedling exotics.

Layers of the young branches in the ſpring will be well rooted in one year; and cuttings of the young ſhoots, planted in ſpring, in pots, and plunged in a hot-bed, will readily emit roots in ſix or eight weeks.

MATFELON. Blue bottle.

MAUDLIN, [*Achillæa.*] Yarrow, milfoil.

MAY. The fifth month in the year:—in which the

Products of the Kitchen Garden are,

Radiſhes, ſpinage, ſalleting of all ſorts, cabbage, brown dutch, Sileſia and Imperial lettuces, aſparagus in plenty; early peas and beans, cauliflowers from under bell-glaſſes, young carrots, artichokes, kidney-beans and cucumbers upon hot-beds; purſlain upon warm borders, or on hot-beds, with moſt ſorts of ſpring herbs.

Fruits in Prime, or yet laſting.

Pears; L'Amozelle, or Lord Cheney's green, Parkinſon's warden, burgamot de Pacque, Bezy du Chaumontelle, cadillac, with ſome others.

Apples; golden ruſſet, ſtone pippin, John apple, oaken pin, pomme d'api, winter ruſſet, and ſometimes the nonpareil; May and May-duke cherries; and in a warm ſituation, ſome ſcarlet ſtrawberries; in the forcing frame, maſculine apricots, nutmeg peaches, and ſome early plumbs.

Plants now in Flower.

Late flowering tulips, anemonies, ranunculus's, pinks of ſeveral ſorts; lilly of the valley, double white narciſſus, ſea narciſſus, tuberoſe iris's of ſeveral ſorts; white and yellow aſphodel, pulſatilla's, double rockets, pionies of ſeveral ſorts, corn-flags, yellow and and pompony martagons, Engliſh hyacinths, ſtarry hyacinth, hyacinth of Peru, blue grape hyacinth, feathered hyacinths, bulbous iris, blue aconite or monk's-hood, Tradeſcant's ſpiderwort, ſavoy ſpiderwort, bulbous fiery lily, red day lily, double purple and large blue periwinkle, peach-leaved and nettle-leaved bell-flower, fraxinella white and red, hedyſarum clypeatum, lychnidea Virginiana, double German catchfly, Greek valerian white and blue, double white and red batchelors button, double white mountain ranunculus, double ragged robin, helianthemums ſeveral kinds, jacea's ſeveral ſorts, double feverfew, ſea ragwort, veronica's of ſeveral ſorts, digitalis or fox-glove, two or three ſorts, buphthalmums two or three ſorts, with ſeveral others of leſs note.

Hardy Trees and Shrubs now in Flower.

White, blue, purple and Perſian lilacs, elder roſe, yellow jeſſamine, ſyringa, early white, Italian and common honey-ſuckles, cinquefoil-tree, laburnums, two or three ſorts; bird-cherry, Corniſh-cherry, flowering aſh, horſe-cheſnut, ſcarlet horſe-cheſnut, perfumed cherry, cockſpur hawthorn, double flowering hawthorn, male ciſtus, mallow-tree, Arbor Judæ, cytiſus lunatus, ſcorpion ſena, bladder ſena, cytiſus ſecundus, cluſii, lotus or nettle-tree

tree, ſea buck-thorn, ſpirea ſalicis folio, ſpirea opuli folio, ſpirea hyperici folio, monthly, cinnamon, damaſk and burnet-leaved roſes, with ſome others.

Plants now in Flower in the Green-houſe and Stove.

Several ſorts of ficoides's, ſome geraniums, aloes, oranges, aloe-leaved aſphodel, onion-leaved aſphodel, African ſcabious anemonoſpermos's, ſalvia Africana flore aureo magno, phlomis's ſeveral ſorts, polygala Africana, the humble plant, ricinoides folio multifido, lotus argentea Cretica, with ſome others.

MAYBUSH. Hawthorn.

May LILLY. *See* LILLY *of the Valley.*

May WEED. *See* STINKING CAMOMILE.

MEADOW. The Farmer in his converſation, and writers in their books, divide the natural graſs grounds into two kinds, not as differing in the ſpecies, but in the place of growth, and the intended uſe. Theſe they diſtinguiſh by the names of meadow and paſture, and generally underſtand, by that diſtinction, the graſs intended to be cut for hay, and that to be eaten on the ground, but this is an uncertain manner of ſpeaking. By meadow ſome expreſs the graſs of low grounds only, that lie about rivers; and by paſture only ſuch as grows on higher lands; but both theſe are by the judicious farmer mowed at times, and fed at times, ſo that all that is properly to be underſtood by the two words is, that being uſed together, they expreſs that part of the farmer's land which is not in tillage, and they ſhould be uſed together, becauſe this variation comprehends all graſs ground whatſoever, in diſtinction from all that which is kept in tilth.

It is a matter of great importance to the farmer, to proportion theſe two kinds of ground, the tillage and paſturage, one to another. There are many who call themſelves farmers near London, and about other great towns, who deal altogether in paſturage; and this they may do without any neceſſity of tillage; but there is is no ſuch thing as a man's keeping his farm all in tillage, without paſture. His cattle muſt have food, and his fields for corn in the common way of huſbandry, require a great deal of dung for manure.

This brings on the neceſſity of keeping up a proportion between one kind and the other, for which there is no laying down any general rule; becauſe, according to the nature of his land, and the particular courſe of huſbandry he follows, more or leſs dung may be wanting.

His experience alone muſt ſhew him this, but he will find it eaſy to make alterations where it is neceſſary: the laying down a piece of corn land for graſs, and the taking up a piece of graſs ground for tilth, being, as we have ſhewn, very eaſy.

There are particular eſtates alſo that anſwer beſt in various manners. There are ſome that are ſo rich and proper for corn, and that lie ſo conveniently for dung, that a much greater proportion than the common method may be kept conveniently and profitably in tillage; and there are others naturally favourable to graſs, and that lie where there is a great demand for it; and in theſe the greater part ſhould be kept for paſture.

As we have ſhewn that the diſtinction into meadow and paſture is very little ſettled in its meaning, we ſhall, to be the better underſtood by all, ſpeak in general of both under the name of graſs ground. The hay from graſs grounds that lie low, and are what is moſt properly called meadows, is generally in larger quantity than that from ſuch as are higher; but this latter, though there is leſs of it, is ſweeter.

The abundance of water that often gets into, or upon theſe low grounds, makes the graſs rank; and where they lie in the way of conſtant wet, they naturally produce very coarſe kinds of it. We ſee ruſhes grow in barren and wet places, and there are a great many kinds of graſs, tho' not enough regarded, that more or leſs approach to the ruſhy kind, which greatly diminiſh the the value of the hay, that comes from the wetter ſort of theſe grounds.

The graſs grounds that lie high require aſſiſtances from manure, but thoſe which are lower, and in the way of flooding, do not; the overflowing of every river ſo far imitates that of the Nile, that it always leaves a mud behind it, which ſerves in the place of manure, and makes the graſs ſpring freſh, as if art had been uſed to recruit the ſtrength of the ground.

We have named two kinds of graſs grounds, but there is a third yet to be mentioned, which is ſuch as are in the reach of ſalt water, whether by the ſides of rivers, near the ſea, or of the ſea itſelf. Theſe are a great quantity in one part or other of the kingdom, and are capable of being turned to very good account, their management therefore is a material conſideration in a work intended for general uſe.

Having premiſed thus much concerning the nature and diſtinctions of graſs ground in England, we ſhall firſt conſider the three ſorts ſeparately, and afterwards the general and particular methods of procuring the richeſt produce from each.

Theſe are what the farmer generally expreſſes by the term up-land graſs grounds; ſome, by way of diſtinction from the lower, call them paſtures, the other having the name of meadow. Theſe up-land graſs grounds differ in ſituation as they lie upon higher or lower riſings, or upon their tops or ſides: they alſo vary greatly in their ſoil, which, tho' it be in general different from that of meadows, yet is alſo very various in kind between one up-land ground and another.

With reſpect to their particular ſituation, we muſt firſt obſerve, that as a certain degree of expoſure is proper for graſs, ſo there may be too much; and therefore that thoſe riſings which are of a moderate height, are better for graſs than ſuch as come under the denomiation of high hills.

The next difference is, that of their lying on the top, or on the ſide of a hill; and this is ſo great, that it often trebles the value in one above the other: nothing is more frequent than for ground to be wet and boggy on the top of a hill, while it is perfectly fine on the ſides all the way down.

Springs naturally riſe on hills, and when they are pent in, they break and ſoak through the very ſubſtance of the ground, and convert the whole upper part of the ſurface into a bog.

On the contrary, the ſide of a riſing ground that has a gradual deſcent, is, of all ſituations that can be named, the beſt for graſs. In ſuch ground there generally is moiſture at the bottom, which is very eſſential to graſs, and there is a way for it to run off, which is equally neceſſary.

Graſs will not thrive without water, nor can it be good where there is too much; this is the great article. Where the tops of hills that are any thing high have no ſpring, the bleakneſs of the expoſure, and the poorneſs of the ſoil, as that is commonly the caſe, render the graſs very weak: it is ſweet, but very little of it; and where there are ſprings, it is general boggy. The way of getting off the water we have already treated of under the article draining; we here ſpeak of the natural condition.

Now the ſide of a hill, having ſoil and moiſture, feeds a rich and good graſs, without having ſo much wet as to make it rank, or favour the growth of ruſhes, or thoſe other bad kinds of mixture, which generally depreciate that which grows on the tops of hills, or near rivers.

As to that in meadows, lying low, it is generally a black rich mould, and nothing more favours the growth of fine graſs; but then what theſe grounds gain in ſoil, they loſe by the abundant moiſture.

The up-land paſtures, of which we treat here, have all that variety of ſoils we ſee in tilled ground; they are ſometimes gravelly, ſometimes loamy, in others they are ſtony, chalky, or clayey. Of all theſe, the loamy ſoil, where there is a good proportion of rich earth amongſt it, yields the beſt graſs; upon clay, it is apt to be coarſe, becauſe of the wet it detains; upon chalk, it is low; upon gravel, it is ſweet, but thin; the loam, when of the right condition, yields it juſt in the middle way between all theſe, it is plentiful yet ſweet, and affords the fineſt hay, and the ſweeteſt and richeſt food for cattle.

This will direct the farmer, when he is about to make changes in the proportion of his tillage and paſture, what to keep for graſs, and what to break up.

A ſoil that is too clayey, is liable to great inconveniencies with reſpect to graſs: in winter it detains the wet a long time, and in the ſummer it cracks and chaps, and no earth is more perfectly burnt up.

The black mould, ſuch as is in the low grounds, yields abundance of fine graſs when it lies dry on the ſide of a hill, but then it is commonly infeſted in a terrible manner with worms; the loamy ſoils are leſs ſubject to them, and

are therefore preferable; ſo that on all accounts, that preference is due to the rich loams, which we have given them in reſpect to the growth of graſs: they are not ſubject to poach in winter, nor to crack or be burnt up in ſummer.

All low ground is ſubject to overflowing, either in a larger way by rivers, or in a ſmaller by the water coming from the higher grounds in the winter rains; and both theſe wettings are of great benefit, if proper care be taken to carry off the redundant water; and to prevent the overflowing by rivers at improper times.

The fineſt part of the mould is waſhed off by rains from ploughed lands that lie high, and a part of the manure with it, and carried down with the water to the low graſs grounds at their bottom; this it is that renders them ſo fruitful; and in ſame manner land floods drowning meadows by river ſides, have the ſame effect. The waters of theſe are thick and yellow, with the richeſt part of the ſoil from the adjoining high grounds, and they leave this upon thoſe meadows when they lie upon them to ſettle, and are then taken off. This renders the graſs on theſe grounds very plentiful, but as there generally remains too much of the moiſture behind, it is coarſe; there grow weeds, and ill kinds of graſs in them, which are not in the ſweet paſturage of the up-lands. There is a great deal of difference in the value of thoſe meadows which are liable to be overflowed by accident, and thoſe which are capable of being overflowed at pleaſure, but are out of that danger. In the firſt, the water may come at a wrong time, and often does ſo to the utter loſs of the crop: but, in the other, it never can come but when it is brought, and yet 'tis at all thoſe times, when proper, ready at the huſbandman's command.

Such meadows as lie flat on the banks of great rivers, are of the firſt kind: theſe are ſubject to accidental floodings, which may come at very wrong times, and are therefore very precarious and uncertain as to the produce.

Thoſe which lie near leſſer ſtreams, and a little higher than the level of their waters, are of the latter kind; they may be overflowed when it will do them good by turning the ſtream of the water upon them; and theſe are worth much more than other low graſs grounds for this reaſon; as the others, from their hazardous ſituation, are worth leſs.

To thoſe two we may add a third kind of graſs grounds, which are of a kind of middle nature between theſe, and the up-land paſtures. Theſe laſt are ſuch as lie above the level of the water conſiderably, yet not ſo much but it may be brought over them by means of wheels or engines: theſe are expenſive, but the benefit very great. We have not the ſpirit of the Italians in this reſpect, nor indeed the neceſſity: they raiſe water to a ſurpriſing height for the overflowing their paſtures; and they owe all their verdure to that artificial management.

The meadows that lie on the ſides of large rivers, having all the ſame general ſoil, which is a rich dark mould, they yield abundance of graſs; and they owe their fertility to the overflowing of thoſe rivers.

When graſs grounds lie near the borders of great rivers, but ſo high as not to be flooded accidentally, it will always be worth the farmer's while to have an engine for overflowing them at ſuch times as he ſhall think proper.

We have ſhewn what is to be expected from each kind of graſs ground with reſpect to its ſoil, its ſituation and its degree of moiſture: we now come to conſider thoſe accidents to which all graſs grounds are liable, and which reduce their value. Theſe are of three principal kinds, the firſt being from weeds, the ſecond from rubbiſh of any ſort, left on the ground, and the third from ant-hills and mole-hills: theſe laſt are the moſt difficult to be removed, but when mowing is conſidered, they are of all other annoyances the moſt obnoxious.

Weeds are of various kinds, and hurtful in different degrees. All plants, not of the graſs kind, may be called by this name when among graſs, but ſome are beneficial: the white treſoil, which is a ſort of clover; and the red treſoil, which is a wild clover, are both ſerviceable, and ſo are ſeveral other little plants that riſe ſpontaneouſly among the graſs.

The large weeds are moſt troubleſome, ſuch as thiſtles, docks, and mallows. Theſe are grubbed up, or drawn with an inſtrument made for that purpoſe, called the thiſtle hook. This

pierce

pierces into the ground, and laying hold of them at ſome depth, eaſily pulls the whole root up.

As to accidental rubbiſh, this muſt always be picked off. Some will be thrown on by careleſſneſs, and ſome comes on among the manure; which, though not ſo eaſily ſeen at firſt, is very plainly to be perceived when the rains have waſhed the rich part of the dung into the ground.

Women or boys may be ſent in to gather up this ſort of ſtuff, which conſiſts of bones, bits of brick, and broken glaſs; a little trouble takes it off, and ſaves a great deal of difficulty to the mowers. *See* ANTHILLS.

Dung is an univerſal manure for graſs ground, and the more mellow and rotten it is, the better: moſt people content themſelves with it, and ſeek no farther; but graſs ground of of different ſoils as well as corn land, admits with advantage the ſame diverſity of manures.

For graſs ground of the common kind, where the ſoil is a fat loam, or a loam with a very large quantity of mellow earth among it, the beſt of all manure is old dung and pond mud mixed together. This may be conſidered as the general manure for theſe grounds; and the time of laying it on is according to the particular circumſtances or uſe the farmer makes of his land, from September to February.

The moſt favourable time of all is in the middle of winter, that there may be froſt to diſſolve and break to pieces the harder parts of the manure, and the rains may waſh the whole into the ground at their leiſure, while there is no great power of ſun to evaporate the virtue of it as it lies ſpread on the ground.

The way of laying on manure upon graſs ground, is to drop it in ſmall heaps at due diſtance; and firſt employing labourers to break and ſpread it well by hand, the owner is afterwards to have it worked over with a buſh harrow.

When a piece of graſs ground produces moſs, and other bad things, but not in ſuch a degree as to require the method of cutting up and burning, the beſt method is to ſtrew over it twice a year, namely, in October & the beginning of February, a mixture of two parts coal-aſhes and one part wood-aſhes, wetted with the emptying the pots of the family.

On a piece of graſs ground, that is cold, but not very wet, let the huſbandman ſpread a good dreſſing of pigeon's dung; or of the dung of fowls mixed with earth and coal-aſhes. This is to be done at the latter end of February, and being the richeſt of all manures, it muſt be ſpread with the greateſt care and attention; it will thus come to the roots of the graſs, juſt as they are about to make their ſhoot, and will cauſe twenty blades in many places to grow for one.

There are good graſs grounds on the ſort of ſoil quite oppoſite to what we have been naming, that is, on ſuch a loam as having a great proportion of ſand, and little of the binding ingredients in it, is hot, looſe, and crumbly. In this caſe the manure muſt be varied as the ſoil varies; and of all that can be recommended, nothing comes near the virtue of any one of thoſe clayey marles we have deſcribed under the head of manures; a dreſſing like this laid on early in winter, becomes quite broken and mouldered by the ſpring, and will all waſh into the earth; the conſequence is, that it gives the two qualities wanting firmneſs and fatneſs. The quantity of hay may very well be doubled by ſuch a dreſſing, and the feeding in proportion; and although this be an expenſive manure for graſs lands in the firſt laying on, yet it very well anſwers in the end; for the effect, inſtead of three or four, which is the common duration of manures, will laſt ten or twelve years.

In ſome of the up-land paſtures in Derbyſhire and Staffordſhire, there is a kind of brown earth full of fragments of ſtone. The proper manure for this is lime.

There is nothing ſo wrong in the huſbandman's whole practice, as the deferring the laying his ground for hay too long: it may be convenient to him to feed upon it; but let him conſider what will be the effect of a hot dry ſummer, and what will be the loſs if he be diſappointed of his crop. Spring is the ſeaſon for the graſs to make its ſhoot; and if it be eaten over and over again at that time, and hot dry weather follow, it is deprived of the benefit of rains, and never makes that firſt ſhoot tolerably, nor comes to any reaſonable

ſonable growth afterwards. For theſe reaſons let the farmer ſuit his ſeveral occaſions, ſo as to be ſure of laying down his ground for the hay in time; and if he loſe ſomething in the advantage of feeding, he may be perfectly aſſured of making himſelf ten-fold returns for it.

As ſoon as the cattle are off let him ſend in women or children to finiſh the clearing of the ground, by picking up the broken boughs of trees that the winter winds may have thrown in upon the graſs, and every other kind of annoyance: this done, let him ſend in a labourer or more, according to the compaſs of ground, and let theſe have orders to break and ſpread all about the dung that may have fallen from the cattle upon it; and alſo to break and ſcatter any freſh mole-hills.

This being done, the expence of which is very little, and the convenience and benefit very great, let him order the ground to be rolled carefully and thoroughly.

The rolling graſs grounds intended for mowing is of great conſequence, as it prepares the ſurface for the ſcythe, and deſtroys the laſt accidents that can happen to it during the preparation for hay.

In the winter months the ſurface of the ground will be rendered here and there unequal, by the treading of cattle, in ſuch places as the wet has moſt affected, and where it has lodged moſt: theſe make the growth of the graſs irregular, and therefore are an injury.

During the firſt approach of ſpring the worms will be at work, and will every damp and mild night throw up abundance of their caſts; theſe alſo are, like the other, nuiſances, though not great ones, and they hinder the right and regular growth of the graſs; if there be moles, or if there be any ants left, they will alſo be at work at the ſame time; and this is a ſeaſon at which all ſhould be ſet right; and the condition of the ground is ſuch that it will eaſily be ſo. The roller will anſwer the purpoſe, for it will take more effect at this time than at any other.

The ground being thus carefully laid for hay, the farmer has no farther care but knowing when to cut it. This he muſt carefully obſerve, for there is a proper time of ripeneſs; and all after, as well as all before that, is ſo much loſs.

There is a time of the year when every plant flowers; and graſs, like others, has its ſeaſon. If we examine in other plants the courſe of nature, we ſhall ſee that, though their leaves ſtand pretty well during the flowering, they wither when they come to ripen the ſeed. The leaves of graſs go to the quantity of hay as well as the ſtalks; and are indeed the beſt part: they are not therefore to be neglected for the ſake of the other. The hay will not have its due quantity till the ſtalks are full grown; but after that time, the leaves will fall ſo faſt into a ſtate of decay, that there will be more loſt by twenty times at the bottom, than there is gained at the top. The price of hay is very conſiderable, but that depends upon its goodneſs; and this upon two articles, the time of cutting, and the manner of making; and upon the former little leſs than on the latter.

The fine green colour of hay is very much valued. This is owing, in a great meaſure, to the making; but then it muſt be in the graſs itſelf, otherwiſe all the care that can be taken in drying it, is all in vain; a proper method of turning will preſerve a colour, but it cannot give it: that muſt be from nature.

This fine colour depends, like the reſt of the good qualities, on the time of mowing, or the degree of ripeneſs of the graſs. When it is juſt in flower, the leaves are freſh and green; but when it is got to ſeed, they grow brown; this is the firſt ſtep toward their decay, and this is the change of colour which no art can recover.

While the graſs is but coming to perfection, it is too green; when it has ſtood too long, it becomes brown; and that fine pale green colour ſo eſteemed in hay, can never be obtained by any art afterwards.

The ſmell of hay is another article of its value, and this, like the reſt, muſt be preſerved by care in the making, but it muſt be entirely owing to the time of cutting.

Hay that has ſtood too long, has the the appearance of ſo much ſtubble, and has no more ſmell; whereas at the time of the graſs flowering, which is its juſt ſtate of perfection, there is one of the pleaſanteſt flavours we know, from the cutting through of the ſtalk,

and

and the evaporating of its juice in drying. The colour of the ſtalk fades as well as that of the leaves, after the due ſeaſon is over.

Let the farmer go into his graſs fields from time to time toward the beginning of June, if not prevented ſooner by the full ripeneſs. Let him examine the ſtalks which will be now grown up in height, and ſee how their tops approach toward ripeneſs; he will perceive from time to time the little heads ſwell, and at length there will appear a few white threads. Theſe, in ſome kinds of graſs, only ſhew themſelves on the ſurface of the buttons; and, in others, hang from them a fifth part of an inch. This is the flower of the graſs, and when it appears, the hay-time is near.

He muſt not judge from one or two plants in a hundred, but ſee when the whole field thus gets into bloom; and then he muſt be critical in his examination. The fuller and freſher it is at the top, while the bottom remains perfectly ſound and good, the better; therefore that is to be examined for the final marking of the time. Let the farmer open the graſs with his hands in ſeveral places down to the ground, and obſerve carefully how the lower part looks: as theſe flowery parts, or the top, ripen, the bottom will grow brown. After this the top will get nothing, and the bottom will loſe a great deal, ſo this is the time for the mowing.

The mowers are to be ſent in, and the ground having been thus prepared and levelled for them, they have no excuſe if they do not cut it cloſe. Theſe are a ſort of people, as every one knows who has had any concern with them, who are very apt to ſlight over their work, and ready to ſeize upon any pretence for doing ſo; they have no conſideration that their careleſſneſs is the loſs to the farmer, perhaps of the tenth part of his crop; but let him take care of himſelf. As he has according to theſe directions prepared the ground for them, let him follow them and frequently put them in mind of it, they will thus be brought to do much better than they ever will when left to themſelves; and the addition to the quantity of the hay will very well pay the farmer for his care and attendance.

The buſineſs of hay-making is generally done much better than that of mowing; and if any omiſſion be made in it, it is eaſily ſeen, & there is time to rectify it; but in the mowing, the miſchief is ſcarce to be ſeen, unleſs the ſcythe be followed; and when it is once done, there is no mending of it. The graſs being down, it is to be carefully dried; and in this there is ſo much difference between the practice of the farmers in thoſe parts of the kingdom where huſbandry is moſt improved, and the others, that it ſhould be ſet in the ſtrongeſt light, to render thoſe improvements univerſal.

The graſs being down, it is to be turned and dried, and then it is hay. This is the whole proceſs in a few words, but there muſt go more to the well underſtanding of it.

The great care in this point, is to preſerve the colour. The graſs being cut in the condition we have named, will be of a fine green, and this is to be preſerved; for the farmer may be aſſured, that a loſs of colour is always attended with a loſs of taſte, and loſs of ſmell; and with a certain loſs in the article of price.

To preſerve the colour of the graſs, and give it the full ſweetneſs when it is mowed, it ſhould be let to lie in the ſwarth two days and a half. At the end of this time it is to be ſpread out; this is properly what is called tedding the hay; and thus it is to lie expoſed to the ſun during the remainder of the day. Then it is to be made up in little cocks, which are called graſs cocks, at evening, and ſo left for the night. The next morning, as ſoon as the dew is off the ground, theſe graſs cocks are to be ſpread, and thus the ſide of the graſs that had lain undermoſt, will get dried. In this condition it lies all that day. Toward evening, it is to be cocked up into the ſame little graſs cocks as before.

This is a reaſonable, and an excellent practice, for it at the ſame time gives the hay all the advantage of the air and ſun during the day, and defends it from the dews of the night, which can do little harm when it is gathered up in theſe heaps; though while it lay ſpread upon the ground, they would have greatly interfered with the drying. Sometimes when this caution of cocking up at evening has been omitted, the whole quantity which was very forward in drying the day before, has been

been rendered damp and ſoft, and brought into a worſe condition than at firſt; for the water of the dew is more hurtful to its colour than the natural juices of the graſs. In this condition the ſmell and colour have been greatly impaired, and there has been afterwards no way of recovering them. This is not ſo bad as the practice of the remote farmers, whoſe hay is always brown, and mow-burnt; but it is very much inferior to the true and careful method, and never fails to reduce the price.

In the proper method of hay-making after the tedding, and graſs cocking, ſo far as we have named, the hay is to be ſpread again, and drawn up into a kind of lengths, which they call wind-rows. This is a very good condition for drying, and what is a great advantage alſo, theſe wind-rows are eaſily thrown up into cocks, for they lie conveniently for that purpoſe: thus when the weather is fine, the hay has the full advantage of it, as it lies ſpread out in theſe rows; and if rain come on, the hay-makers can toſs it into cocks in a few minutes, in which condition it will get very little damage, and is ready to be ſpread again to take the advantage of the next fair blaſt.

From theſe wind-rows the hay is to be thrown into large cocks, and in theſe to ſtand through the night, and for ſome time afterwards; but then it is not, though pretty well made, to be carried home directly from the field in this condition. The outſide of one of theſe large cocks will be very dry, while there is moiſture in the middle, and the farmer's buſineſs is to have his hay all alike; not only ſome of the juices of the graſs will remain in that which has been in the innermoſt part of the cock, but it will ſweat a little with lying together: therefore theſe cocks muſt be thrown to pieces, and the whole quantity of the hay once more ſpread upon the ground. If good weather follow, it will thus dry in a very compleat and perfect manner: three hours wind and ſun going farther under theſe circumſtances than a day at another time.

If the weather continue favourable, the buſineſs of hay-making is thus happily finiſhed; but if rain come, the farmer is not to turn the hay that has catched the wet as it lay ſpread, but to let it dry as it lies, which, theſe ſhowers being ſeldom laſting, it will quickly do. On the contrary, if the over-care of the hay-makers ſhould turn the graſs thus nearly dried, and then wetted by accident, to the ground, the damp of the earth would greatly injure it. On the other hand, as the wet is ſlight, and the ſun and air have great power; the top will preſently dry again lying as it is.

After this ſpreading from the cocks, the hay may be thrown together for convenience of loading, and is in perfect good condition to carry in. *See Hay-making.*

MEADOW *Rue*, [*Thalictrum.*] There are ſeveral ſpecies of this plant, all hardy perennials, eaſily propagated by parting the roots in autumn, and ſowing the ſeed in the ſpring.

MEADOW *Saffron*, [*Colchicum.*] There are three ſpecies, the common autumnal, the mountain Spaniſh, and the variegated eaſtern Meadow Saffron. The firſt grows wild with a purple flower in many rich meadows. They are all hardy, and are propagated by off-ſets of the bulbs, taking them up in June when their flowers decay, and putting them into the ground again in Auguſt.

MEADOW *Sweet*, [*Ulmaria.*] This herb is frequent in moiſt meadows, and about the ſides of rivers: it flowers in the beginning of June, and continues in beauty a conſiderable time. The flowers have a very pleaſant flavour, which water extracts from them by infuſion, and elevates in diſtillation.

MEADOW *Trefoil*. See CLOVER.

MEALLY TREE. Wayfaring tree.

MEAK. A hook to cut up peaſe, &c.

MEASLES. This is a common diſorder among hogs, and ſhews itſelf in a redneſs of the eyes, and foulneſs of the ſkin, and in their neglecting their food.

The beſt remedy is this. Keep the hog faſting the whole afternoon and night. Then ſet before him a good meſs of victuals; not large in quantity, but hot and well prepared, and put into it forty grains of ſalt of hartſhorn and two ounces of bole armoniac. It will all go down very well after this faſt; and will make a good beginning of a cure. The ſame method is to be followed every day till he is perfectly recovered, and for a few days after, for fear of returns.

MECHOACAN, [*Mechoacanna.*] The root of an American convolvulus not very unlike jalap, but inferior to it in virtue, and the quantity of resin it yields.

MEDIC. Lucern.

MEDEOLA. See *African* ASPARAGUS.

MEDLAR, [*Mespilus.*] A species of fruit-trees, which may be raised by grafting or budding them upon the common white-thorn. This is the usual way of propagating the American sorts, which are of the hawthorn kind; but the best way to raise the other sorts is from their seeds. All medlars will take when they are grafted or budded upon each other. They will also take upon stocks of pears, or of quinces, and both of these will take upon the medlar; so that there is a great affinity between them. All the American sorts will grow twenty feet high, if they are not stinted by grafting.

Medlars may also be raised from their seeds, which, if put into the ground in autumn, soon after they are ripe, will come up the following spring: but if they are not set till the next year, they will not shoot till the year after.

MELANCHOLY THISTLE, [*Carduus.*] This plant is preserved in the gardens for variety, and is propagated by sowing the seeds in the spring.

MELILOT, [*Melilotus.*] This grows wild in hedges among corn; and has likewise, for medicinal uses, being cultivated in gardens. The green herb has no remarkable smell; when dry, a pretty strong one: the taste is roughish, bitter, and if long chewed, nauseous. A decoction of this herb has been recommended in inflammations of the abdomen; and a decoction of the flowers in the fluor albus. But modern practice rarely employs it any otherwise than in emollient and carminative clysters, and in fomentations, cataplasms, and the like; and in these not often. It formerly gave name to one of the officinal plasters, which received from the melilot a green colour, but no particular virtue.

MELON, [*Cucumis.*] Of the melon, there is but one real species of the plant, but of the fruit there are innumerable varieties, with respect to figure, size, colour of the rind, and flesh or pulp.

This fruit, in different varieties, is of various sizes, from about four to ten or twelve inches in length and diameter, in most sorts ripening externally to a yellowish colour, and some ripen green, and others white, but have mostly a reddish flesh or pulp, except one variety, which is green both in rind and pulp, as hereafter described.

The varieties of most estimation at present in the English gardens are,

Common Musk-Melon. A large, oblong-oval, longitudinally-ribbed, and netted-wrought Melon, having a reddish tolerably rich flavoured flesh; and the plants being of the hardier kind, generally set a plentiful crop of fruit. This is also one of the best sorts of melon for mangoes, for which purpose the London gardeners cultivate principally this variety for the supply of markets.

Romana-Melon. A roundish, moderate-sized, ribbed, and netted melon, somewhat compressed at both ends, and with a reddish firm flesh of a fine rich flavour, the plants good bearers, each often setting from about five or six to eight or ten fruit, and is one of the best sorts, both for an early and general crop.

Cantaleupe, or Armenian Warted Melon. A large, roundish, deeply-ribbed melon, a little compressed at both ends, and the surface full of warted protuberances, and with a reddish firm flesh of a most delicious rich flavour, of which there are some varieties. Large black carbuncled or black rock cantaleupe melon, being of a blackish green colour, having the surface covered with high, rugged, saxtile protuberances. Large white carbuncled cantaleupe melon. Orange cantaleupe melon. These varieties are the finest of the melon kind, with respect to the richness of flavour of the fruit, and which by the melon-eaters are preferred to all the other sorts: but the plants being rather more tender, do not set fruit so freely, nor in such plenty, they often not having more than from one to two or three fruit on a plant, and in a three-light frame sometimes not more than five or six fruit.

This variety derives the term Cantaleupe melon, from Cantaleupe near Roma, the place where it was first cultivated in Europe, brought thence from Armenia.

Small Portugal Melon. A smallish round

round melon, having a reddiſh fleſh of a fine muſky flavour, and the plants are plentiful bearers, each often ſetting from eight or ten to twenty fruit, which, however, is more by half than ſhould be left to come to perfection.

Green fleſhed Melon. An oval, moderate-ſized melon, having an even, ſmooth, green rind, and the fleſh or pulp ripening to a greeniſh colour, which is highly flavoured.

Large Green-rinded Melon. A large roundiſh-oval, green, ſmooth-rinded melon, having a reddiſh fleſh.

Black Galloway Melon. A roundiſh oval, middle-ſized, ſlightly-ribbed, dark-green, ſmooth melon, having a reddiſh, rich flavoured fleſh, and the plants excellent bearers, but the ſort not at preſent very plentiful in England. It was brought from Portugal many years ſince by a Lord Galloway.

Netted or Wrought Melon. An oval, middle-ſized, ſcarcely ribbed melon, having the ſurface cloſely wrought with raiſed net-work, and hath a reddiſh fleſh.

White Spaniſh Melon. An oval, ſmalliſh, white, ſmooth-rinded melon, having a reddiſh pulp.

Zatta Melon. A very ſmall, roundiſh, warty-rinded Melon.

Obſerve, that although all the above kinds be only varieties of the ſame ſpecies, yet, by care in cultivating them ſeparate, they may be continued all tolerably permanent.

There are many other intermediate varieties of leſs note, but a few of known good qualities is better than many different ſorts, ſome of which probably not much better than gourds; and of the varieties here ſpecified, the *Romana* and *Cantaleupe* kinds are conſiderably the moſt worthy of attention, as theſe two ſorts ripen to a much higher degree of perfection.

It is an exotic from the hot parts of the world, ſuppoſed principally of Perſia, from which country, however, it was firſt introduced into the different parts of Europe; and conſequently its culture in every part of Britain can be effected only by artificial heat, and conſtant ſhelter of glaſs, &c. till July as at an early ſeaſon they require a temperature of heat almoſt equal to that of our pine-apple ſtoves.

The principal ſeaſon of ripe melons in England, is June, July, and Auguſt; they, however, by different ſowings and plantings, may be obtained from May till October; but they are always in the greateſt perfection in the times before mentioned.

The flowers of the melon are conſequently *monœcious*, like the cucumber, as being of the ſame genus and claſs, male and female apart on the ſame plant, the males ſtanding immediately on the ſummit of its foot-ſtalk, without any appearance of germen or fruit under it, and the females diſcover the round germen or embrio fruit under its baſe, when not bigger than a pea; obſerving, that the male bloſſoms are by nature deſigned for fertilizing the female flower, as obſerved of the cucumber, ſo muſt not be pulled off until a full crop of fruit is ſet.

With regard to the propagation of the melon, the plants being annual, are raiſed every year from ſeed, ſowed at different times in ſpring, in hot-beds of dung or tanner's bark, under frames and glaſſes, &c. they requiring continual aid of artificial heat and ſhelter, from the time of ſowing until June or July, for they will at no time ſucceed in the natural ground, at leaſt rarely perfect fruit; and each crops require two different hot-beds, that is, to be ſowed in one, and the plants nurſed therein till a month or ſix weeks old, that they begins to ſhoot runners, then tranſplanted into a ſecond and final hot-bed, to remain to fruit.

The ſeaſon for ſowing is any time from the beginning of January, until the middle of April, according to the conveniencies there may be for their culture, and time the fruit is required in perfection; for the early crops, to be raiſed in January, February, and beginning of March, require very ſubſtantial hot-beds, under conſtant ſhelter of garden frames and lights, until July; but the later crops, ſown in the middle of March, and in April, ſucceed with more moderate hot-beds, and may be ridged out in April and May under hand or bell-glaſſes, or oiled paper frames, and the plants will ſet and ripen their fruit under theſe ſhelters; obſerving, that the early ſowings in January ſometimes produce ripe fruit in May, but come into full bearing in June; and thoſe raiſed in February, and early in March, ripen fruit in June, July, and Auguſt; and ſow-

ings performed any time from about the middle of March till that of April, furniſh ripe fruit principally in Auguſt and September, and ſometimes in October.

Obſerve, therefore, that, like the cucumbers, crops of melons may be raiſed in three different ways; under frames and lights, under hand or bell-glaſſes, and under oiled paper; each of which will be exhibited under a ſeparate head.

The materials principally neceſſary in their culture are,

Frames and glaſs lights for early, and hand-glaſſes, &c. and oiled paper lights, for late crops; and for each crop good mats for covering on nights; all as obſerved for the cucumbers.

Horſe ſtable dung, a plentiful ſupply both for making the hot-beds, and for occaſional linings, muſt be in quality, quantity, and preparation, as hinted for cucumbers, and in the article hot-beds.

But ſometimes in the melon culture bark hot-beds are employed, or of bark and dung together, which, where tanner's-bark can be eaſily procured, on account of its regular and durable heat, is a very proper material for hot-beds in the culture of melons, either uſed alone, or mixed with hot dung.

As to mould, the melon, like the cucumber, will proſper in any rich pliable kitchen-garden earth, prepared ſome months in a heap; but the favourite and moſt proſperous ſoil for the melon is a fine mellow loam, taken from the ſurface of a paſture field or common, enriching it with about one-third of rotten neat's dung, or thorough rotten dung of old hot-beds, preparing the whole in a heap, and managed as directed under the article Compoſts; obſerving, that when it is to be uſed, not to ſift or ſcreen any, only break it well to pieces with the ſpade.

The ſituation, or place for making the hot-beds, ſhould be dry, warm, full to the ſun, and ſheltered, as for cucumbers; likewiſe obſerve, not to dig any trench for the early hot-beds, but make them entirely on the ſurface of the ground, for the reaſons there aſſigned.

It is generally adviſed to cultivate melons as far as poſſible diſtant from cucumbers, leſt, by an intercommunication of their *farina*, it ſhould cauſe a degeneracy; there is apparently ſome reaſon in this: however, when we conſider that the two plants are real different ſpecies, I believe there is no great danger to be apprehended, as in the caſe of varieties.

The ſeed, and its kind, being material articles, you ſhould be particularly careful to procure ſuch only as have been ſaved from the very fineſt fruit of the reſpective approved varieties; this, if poſſible, ſhould be two or three years old, for the reaſons obſerved of the cucumber ſeed; but when you are obliged to uſe new ſeed, it is proper either to hang them in a paper, or phial, in a dry room near the fire, all winter, or in a phial, expoſed in a dry window to the ſun; or may carry them in your pockets three or four weeks, either of which expedients will dry up much of the watery parts, whereby the plants will be leſs luxuriant and more fruitful. We receive melon ſeeds annually from France, Spain, Italy, and other hot countries; but we would caution againſt depending on theſe for a principal crop, for not being enured to this climate, the plants from ſuch would be more tender and delicate in their culture, leſs fruitful, and the fruit often of much leſs value, than thoſe of ſeeds ſaved at home; therefore, only a plant or two of the foreign ſeeds ſhould be raiſed at firſt, juſt to prove the quality of the fruit.

From the time of ſowing the ſeed to the maturity of the fruit, it is commonly near four months, and ſometimes longer; for the plants ſeldom ſhew fruit till they have ſhot ſeveral runners, which, from the firſt appearance of the plants, will be at leaſt ſix or eight weeks in effecting; from the appearance of the fruit till it is fairly ſet, a week or fortnight; and from its ſetting till fully ripe will be about forty days.

The proper quantity of hot-bed in the culture of melons for private uſe is, that for the ſmalleſt family there cannot be leſs than one three-light frame for the early, and three hand or bell glaſſes, or three holes under oiled paper, for the late or ſucceſſion crops, allowing two plants to each light of the frame, the ſame to each hand-glaſs, or hole under the paper lights; and ſuppoſing each plant, one with another,

to

to produce about three fruit, ſo that in a three-light frame, and in three holes under hand-glaſſes, or oiled paper ſhelters, there will be but about from thirty to forty melons; though of the ſmaller ſorts of melon there will ſometimes be from ſix to ten, or twelve, or more, on a plant; but ſix or eight is as many as the plants are able to bring to perfection: however, for the ſupply of a middling family, two three-light frames, and, at leaſt, ſix hand or bell-glaſſes, &c. will be neceſſary to furniſh a tolerable ſupply during the ſeaſon; and for a large family, four three-light frames, at leaſt, or twelve lights, will be requiſite, and double that number of hand-glaſſes, or holes of plants under paper frames.

We now proceed to the different methods of culture; and firſt, of their early culture in frames, obſerve as follows.

The time of year to begin the culture of melons in frames, is January, February, and beginning of March; but when deſigned to have melons as early as poſſible, we commonly begin in January, though the beginning of February is a more ſucceſsful time of ſowing to have a good crop; if, however, you begin early in January, it is proper to ſow alſo twice in February and March for ſucceſſion crops; likewiſe to be ready in caſe of accidents to the early plants, or that they ſhould not thrive, as is often the caſe at a very early ſeaſon.

The ſeed may be ſowed, and the plants raiſed, either in a hot-bed of early cucumbers now at work, in the ſame manner in every reſpect as for them directed; or, where none is, make a hot-bed for a one-light frame on purpoſe, obſerving exactly the ſame rules with reſpect to dimenſions, making, framing, and earthing the bed, ſowing the ſeed, and other management, as directed for the early cucumbers; likewiſe, when the plants have been come up three days, that their cotyledons are a little expanded, tranſplant or prick them into ſmall pots for the convenience of removal, as there directed; but of theſe, i. e. melons, put only two plants in each pot, plunging them in the bed, and manage them as above till fit to ridge out; for the cucumbers and melons, being nearly of equal temperature, the ſame degree of heat, air, &c. ſuits both in this part of their culture; it would therefore be ſuperfluous to trouble the reader with a repetition, ſince the particulars are fully exhibited under cucumbers.

In this nurſery-bed they are to be continued a month or ſix weeks, till their firſt runners begin to advance; obſerving, as their ſhanks riſe in height, to earth them up by degrees with fine mould, till the pots are full, for this will greatly encourage them, and they will come faſt into the rough leaf, and begin to form joints and ſhoot runners.

Obſerve, when their two or three firſt rough leaves are fully expanded, and another forming in the centre, appearing like a bud, which part being alſo the end of an advancing ſhoot, it ſhould juſt at this period of its growth be ſtopped, i. e. cut or pinched off cloſe to the ſecond or third leaf, as adviſed for the cucumbers, to procure lateral ſhoots, called runners; for it is from theſe, or others iſſuing from them, that we are to expect the fruit; and when theſe firſt runners appear, the plants are ready for ridging out into the fruiting hot-bed.

The plants from the time of ſowing, till arrived at the above ſize for ridging-out, take about five or ſix weeks growth.

The ridging-out, or fruiting hot-bed, ſhould be prepared in due time to receive the plants when arrived to the proper age and ſize above-mentioned; obſerving, to prepare freſh hot dung a week or two in a heap, as for the cucumbers, ſufficient for one or more three-light frames; let the bed be made entirely on the ſurface, for the opportunity of lining, carrying it up three feet and half, or four feet high, raiſing the back or north ſide three or four inches higher; directly put on the frame and lights, to defend the bed from chilling rains, and to draw up the heat, tilting the glaſſes behind for the ſteam to paſs away; and in a week, or ten or fifteen days, according to the ſubſtance of the bed, its firſt great heat will abate; then prepare to mould it, and put in the plants, obſerving the neceſſary precautions, as for the cucumber beds.

The bed being ready, as above, then wheel in your prepared mould, and lay juſt under the middle of each light about

about a bushel of it in a heap, for the immediate reception of the plants, forming each heap into a sort of conical hillock about fifteen inches high; and the thus having the hills of earth this height, is proper both that the plants may be near the glasses, which is of importance to early work, and to allow them a good depth of earth; for they should generally have a greater depth of mould than cucumbers, the plants being more impatient of moisture by watering, which is also prejudicial to the prosperity and flavour of the fruit; that, therefore, by allowing a good depth of earth, they will shift much longer without the aid of water: when the hillocks are thus formed, directly earth the other parts of the bed within the frame three inches thick, just to keep down the steam rising immediately from the dung; then shut down the lights, and when the earth is warm put in the plants.

In a day or two the heat of the dung will have sufficiently warmed the hills of earth; then bring the plants in their pots; being two in each, plant one pot of plants, with the balls of earth about their roots, in the middle of each hill, as directed for the cucumbers; and if the mould should appear dry, give a little water towards the outside, being careful not to wet the plants much at this time; and as soon as planted shut down the lights, to draw up the heat about the roots of the plants, but tilt them again in due time, to pass off the steam.

The plants being now ridged out into the fruiting hot-bed, observe, that as the glasses are to be continued constantly on the frames till July, your daily care is to admit fresh air at all opportunities in calm weather, by tilting the lights behind from about half an inch to two, three, or four high, according to the temperature of the heat and steam of the bed, and that of the outward air, which must be also observed occasionally on nights at first ridging-out, if there is a great steam, for this must not be pent up, nor stagnated for want of air; cover the glasses also every night with mats, one or two thick, as shall seem necessary, but never let them hang down all over the sides of the frame and bed, as often done, which would draw up a violent steam, and exclude the air too much from the plants, and draw them up weak and of a yellow colour; give water also occasionally when the earth appears dry: observing, that in the performance of all of the above works in this bed, to follow strictly the same rules as exhibited in the ridging-out bed of early cucumbers; but to keep in mind, that melons, being rather impatient of moisture, must have it more seldom, and less in proportion, than for cucumbers, especially near the main stem and principal roots; for by much moisture these parts are apt to canker and rot, so should be watered mostly at some distance from these principal parts, and never to wet the vine much at an early season; but when there is not less than twelve or fifteen inches depth of earth on the beds, they will not need water oftner than once a fortnight; and sometimes, when the earth is of a loamy nature and depth as above, and pressed down close, that it may the better retain its natural moistness, the plants, after two or three waterings, till they have firmly established their roots, will often succeed without, or, at least, with very little more water; and in which case they generally set their fruit freely; and it ripens to a rich and high flavour; for redundancy of moisture retards the setting of the fruit; and although, after it is fairly set, occasional waterings will encrease its magnitude, yet much of it greatly debases its flavour and taste; but on the other hand observe, that where the earth of the beds is a light texture, or of but a moderate depth, the plants will all along require occasional waterings, especially in warm sunny weather; let it however be remembered, that when the plants exhibit their first shew of young fruit, no water, or as little as possible, should be given, until the fruit is set as big as walnuts, when, agreeable to the nature and proportion of the earth, and other rules as above mentioned, and as hereafter hinted, use your discretion accordingly in watering.

Examine with care for the first week after ridging out, that the earth of the hills and roots of the plants do not receive too much heat from the violence of the bed; and if there is danger, remove some of the earth around the lower part of each hill; and if any is burned at bottom, add directly some fresh

freſh in its ſtead, and in a few days or a week the burning quality will ſubſide; then place the removed mould again about the hillocks.

After danger of burning is paſt, cheriſh the heat as much as poſſible, by laying long dry litter around the ſides of the bed, to defend it from chilling wet and cold piercing winds.

When the heat begins to decline conſiderably, be ſure to revive it as ſoon as poſſible, by adding a ſubſtantial lining of hot dung, to the ſides of the bed at different times, uſing the ſame precaution of earthing the top, &c. to prevent the ſteam of the linings entering under the bottom, or at any part of the frame; for the rancid ſteam coming directly from the dung would deſtroy the plants.

When the fibres of the plants begin to advance through the hills of earth, let ſome freſh mould be layed in the frame at different times to warm, and by degrees add each parcel around the hills, till the whole bed is gradually molded nearly as high as the top of them; but rather let the top of each hill be about an inch higher, that the main ſtem and principal roots may be preſerved moderately dry, otherwiſe, being watered, would ſoak to theſe principal parts, and cauſe them to rot, as being very impatient of copious moiſture from watering, &c. therefore, according as the mould is occaſionally added, obſerve the afore-mentioned precaution: alſo to preſs it down cloſe, that by lying compact it may retain a due moiſture in itſelf the longer, ſo as the plants will require to be but ſeldom watered.

As the runners of the plants advance, diſpoſe them with regularity, and when they are three joints long, if no young fruit appears, it is proper to perform a ſecond ſtopping, by taking off the end of the extreme joint, to promote a more ſpeedy ſupply of other lateral runners, which, together with others naturally ariſing from them, will ſufficiently ſpread the bed with vine; and it is from theſe lateral ſhoots we may generally expect ſoon to ſee plenty of young fruit.

At the firſt training the vines, as above, if ſome dry and clean reeds are thinly ſpread upon the ſurface of the bed for the vines to run upon, it will preſerve all the runners and young fruit from the damp of the earth, as well as prevent the earth and upper fibres of the roots from being dried too faſt by the ſun; ſome, for the above purpoſes, cover the bed all over cloſely with plane tiles; but this I ſhould think rather excludes the neceſſary benefit of the ſun and air, too much from the earth and roots of the plants.

When the young fruit begins to appear, it is of much importance to ſupport a due temperature of heat in the beds, by occaſional linings, &c. do not omit this, becauſe the whole ſucceſs of having the plants ſet, a regular and a plentiful crop of fruit depends on a good bottom heat, both to warm the earth ſufficiently about the fibres, as well as the internal air of the frame; for theſe fruit being ſo extremely tender whilſt young, that without a proper heat they ſet very ſparing and ſtraggligly, generally aſſuming a ſlow, ſtunted, and irregular habit of growth; maintain, therefore, the neceſſary degree of heat, and the fruit will ſet freely, and ſwell faſt in magnitude.

At this period alſo of the firſt appearance of the fruit, I ſhould adviſe to forbear watering, if poſſible, till the fruit is ſet as large as good walnuts, as we above obſerved; obſerving, that if the plants are growing in a tolerable depth of ſoil of a loamy nature, they will ſhift very well without any during that period, or longer, unleſs the earth ſhould be very dry indeed, and then let them have it but ſparingly; for if any conſiderable portion of water is given when the fruit is ſetting, the vine will acquire a glut of ſap, and continue ſhooting with great luxuriancy, which is contrary to the nature of theſe young fruit, as, being of ſuch a delicate temperature in their infant ſtate, and even during their minor growth, that the exuberant quantity of ſap in the branches cauſes them to turn yellow, and drop off ſoon after they have bloſſomed, and ſometimes after they have ſet as large as an egg, and more eſpecially if there is not a due degree of warmth in the beds.

According as the young fruit appears, you will obſerve it accompanied by abundance of male bloſſoms; theſe muſt not be picked off, as too often practiſed, their *pulvis antherarum*, or powder of their antheræ, being abſolutely neceſſary for fecundating the female flowers,

flowers, and fertilizing the young fruit; it is therefore of importance not only to retain these flowers, but also, to assist nature, it is proper, in the early crops, to perform the operation of setting, i. e. of applying their antheræ to the stigmata of the female blossoms, using for this purpose such male flowers whose antheræ are duly ripened, and well furnished with *farina*, which you may readily know by previously applying the antheræ gently to the thumb nail, to which some of the *pollen*, if ripened, will adhere; so using one or two males to each female blossom, and it will be found to assist greatly in setting the early fruit.

Air, at this time of blossoming, will also be particularly beneficial in promoting the free setting of the fruit; do not omit therefore to admit it every mild day, in manner before mentioned.

After setting the fruit, observe, that as they are most commonly produced on the lateral runners, issuing from the sides of the main vine, and that exuberancy of sap retards their setting, we would advise, if the plants are rather luxuriant, that, to restrain the sap from flowing too abundantly into the setting fruit, instead of stopping the end of the runner, as often done, rather turn it carefully curve-ways, so that the end may incline towards the main stem, whereby the sap will be directed from the bearing runners, and its course continued principally into the more luxuriant branches; and the sooner this is done the better, which, after the fruit is set, and a little advanced in growth, must be turned again into their former position. Many persons prune off the ends of the bearing runners a joint or two beyond the fruit, in order that the whole nourishment of that branch should be directed to it, to make it more certainly stand; but this has often the contrary effect, since stopping or shortening a branch promotes its drawing a greater quantity of sap, which, as we have above observed, is contrary to setting these fruit; therefore, those branches on which the setting fruit are immediately situated, should not be stopped until the fruit is fairly set, and full as big as a large walnut.

Neither is it proper to stop many of the runners, which would occasion their throwing out numerous shoots, and cause a great confusion of vine.

As the fruit sets, and has attained nearly the size just mentioned, the branches on which they grow, if they were turned towards the main stem, as above advised, should be now reconducted into their former directions, that the sap may now find a freer passage to nourish the fruit.

Likewise, as the fruit sets, lay a piece of clean dry tile under each, to preserve it the better from the moisture of the earth.

The quantity of fruit to be expected to set and arrive to perfection, is from about two or three, to eight or ten upon each plant; but this is according to the sorts; for the Canteleupe Melon sometimes does not set above two or three on a plant; on the other hand, the Romana will sometimes set and ripen eight or ten, and sometimes many more fruit will set than the plants are capable of nourishing; but, when this is the case, they should be thinned; and even of the smaller kinds leave only about six or eight of the most promising fruit upon each plant, and not more than five or six of the larger kinds, and never leave more than one fruit upon the same runner, and that which is nearest the main vine is generally the most eligible to leave, though it is best to fix upon that of the forwardest and handsomest growth.

After a tolerable crop of fruit is set, and they advanced in magnitude, if the earth of the bed is dry, take the first opportunity of a mild day to give a good watering, especially if the bed is kept to a proper heat, which, according to the nature of the earth, and its deepth on the beds, may be afterwards either wholly discontinued, or less or more repeated, as you shall see occasion by the temperature of moistness, or dryness of the earth; observing, in giving water, let it be rather most towards the sides of the bed, so as still to preserve the main stem and principal root always moderately dry.

Continue also to admit air at all opportunities every day when the weather is fine, which is also very beneficial to the free growth of the young swelling fruit.

Still, likewise, continue to support a due temperature of heat in the bed by occasional linings with the usual care, even till May; for, by maintaining a bottom heat, the fruit will swell freely,

freely, continue a regular growth, and be in a little time surprisingly forwarded in magnitude. In applying the last lining in April, or beginning or middle of May, it is proper to earth it at top equal in depth to that of the bed, and by raising the frame the fibres of the plants will strike into the mould, and receive very great benefit, as will appear from the healthful appearance of the plants, and free growth of the fruit; but observe, this part should be defended from great rains with mats, that the extreme fibres may not receive and convey too much moisture to the vines and fruit, otherwise it would be more adviseable to confine the fibres wholly within the frame.

Shading the plants occasionally from the sun may be necessary in very hot days, when the sun is so powerful as to endanger scorching their leaves, &c. observing the same rules as for the early cucumbers.

As the leaves of the plants grow large, and press against the glasses, continue to raise the frame at bottom three inches; and as, in doing this, the earth next the frame will be disturbed, directly therefore make good all inequalities; and, if the leaves are considerably crouded, it is proper to thin them a little in proportion, so as that the young fruit may receive the necessary benefit of the sun and air.

If, after a due quantity of fruit is fairly set, and advancing in growth, the vine is greatly crowded, it is proper to regulate them, by cutting off close all the small runners, proceeding from the principal fruit-branches, and others, and any luxuriant shoots that support neither bearing runners nor fruit, and such other vine as may appear to be superfluous or unnecessary, cutting them off quite close, which will greatly encourage the free growth, and promote the size of the melons.

In May and June, as the vines of the plants will be advanced to the sides of the frame, if you have a full crop of fruit fairly set, they may be pruned so as to confine them within due compass; or, if you would have as many fruit as possible to succeed each other, they may be suffered to run out from under the frame upon the top of the lining, to produce some late fruit to succeed those already set within the frame, raising the frame high enough at bottom for that purpose towards the middle of June; observing, when the vines are thus trained out, to cover them every night, and all very wet weather, with mats; for the glasses must also still be continued on the frames till the weather is become quite settled and warm towards the end of this, or in next month, (July) and then only taken off a few hours in the warmest time of the day, and always put on at night and in all wet weather.

When the fruit is nearly full grown, no water, or at least very little, should be given; for moisture will considerably retard its ripening, as well as rob it of the richness of its flavour. At this period of growth let each fruit be placed upon a brick, or some flat tiles, placed one upon another, to raise it a little above the leaves, to receive the greater benefit of the sun and air, whereby its flavour and relish will be considerably improved, being careful to turn it every three days, that every part may equally enjoy the benefit of the sun's influence; observing also, at this time, to admit a large portion of fresh air every mild day, by tilting the lights several inches behind, or in front, in very hot weather, which will also contribute very much to the rich flavour of the ripening fruit.

From the setting of the fruit to its maturity, it takes commonly about six or seven weeks, and sometimes more.

The maturity of the fruit is known sometimes by its cracking at the base, as if it would start or recede from the stalk; sometimes by its inclining to a yellow colour; frequently by imparting a fragrant odour; and when the top of the fruit is soft, it is always a sure indication of ripeness; therefore, observing these appearances of maturity, let the fruit be cut at the proper time; for if suffered to remain on the vine a day or two longer, it will lose much of its flavour. Let it be cut in a morning before the sun shines hot to evaporate its rich juices, cutting each fruit with all its stalk, and lay it in a dry but cool airy place till it is wanted for table.

In the latter end of June, and in July, if the weather is dry and warm, the plants may be gradually inured to full air, by shoving the glasses off a few hours in fine dry days; but let them not have much rain, lest it rot the

main ſtem of the plants, and it would alſo debaſe the flavour of the fruit; therefore retain the glaſſes ready at the back of the frames, to draw on every night, and in all very wet and boiſterous weather.

The culture of melons under hand or bell-glaſſes is effected by ſowing the ſeed in March or April, in a nurſery hot-bed, under frames and lights, and when the plants are about a month old tranſplant them into ridges or hot-beds, under the above glaſſes, to remain for fruiting; but, in default of frames, the plants might even be raiſed entirely under hand or bell-glaſſes, placed on a hot-bed, ſowing them in April, and tranſplant them into a freſh hot-bed in May, under the ſame ſorts of glaſſes, or oiled paper lights; they will ſometimes come in for a tolerable crop in Auguſt and September; however, the moſt eligible practice is, where poſſible, to ſow and forward the plants in a hot-bed, under frames, pricking the young plants in pots, ſo continuing them in the frame hot-bed till large enough to ridge out, then tranſplant them with balls into the fruiting hot-bed.

The moſt proper period of time for ſowing the above crops is, the third and fourth week in March; but, if poſſible, for the main crops, never be later than the firſt week in April.

And the time for ridging out the plants under theſe glaſſes, is from about the eighteenth or twentieth of April until about the middle of May.

For, it muſt be remembered, that theſe hand-glaſs crops muſt never be raiſed nor ridged out before the above-mentioned times, otherwiſe they will advance too much in growth, and fill the glaſſes before the nature of the ſeaſon admitted of their being trained out, unleſs ſheltered by paper frames, as they muſt not be confined within the ſmall compaſs of theſe glaſſes, longer than the beginning or middle of June, when the weather becomes ſettled and warm; nor ought the principal crops to be ſowed nor ridged out later than the times above ſpecified, becauſe they would not be forward enough to ripen their fruit in perfection before the approach of cold weather in autumn.

The ſeed may be ſown, and the plants raiſed large enough for ridging out, either in the hot-beds of forward melons or cucumbers now at work under frames, or in a ſmall hot-bed made on purpoſe for a one-light box, &c. earthed a few inches deep, ſowing the ſeed either in pots half an inch deep, or in the earth of the bed, drilling it in that depth, ſo managing the ſame as for the ſeedling melons and cucumbers for the frames; prick the plants alſo in pots, when a few days old, two in each pot, as in the frame crops, giving them nearly the ſame culture; and having expanded their two firſt rough leaves, ſtop them at the firſt joint, as there directed; and when a month or five weeks old they will begin to ſhoot runners, and ſhould then be ridged out into the fruiting hot-bed.

Therefore you muſt forecaſt to prepare the dung, and make the ridges or hot-beds in proper time, to be ready to receive the plants at the above period of growth.

The dimenſions of the fruiting hot-bed ſhould be four feet and half wide, and, if made in April, two feet and half, or a yard high; and even if made early in May, two feet and half depth of dung will be requiſite; nor ſhould it be leſs than two feet high, made in any time of that month; and the length in proportion to the number of glaſſes you intend working, allowing them at a yard and half diſtance from centre to centre, in one row along the top of the bed; obſerving, that if the plants are ready for ridging out in April, or beginning of May, the bed ſhould be made entirely above ground, for the opportunity of lining the ſides when the heat declines; or, at this ſeaſon, if the ground be tolerably dry, ſo as there will not be much danger of ſtanding, the bed may be made in a trench, for the advantage of having it retain its heat the longer, making the trench four feet and half wide, and eighteen or twenty inches deep; but obſerving, that in three weeks after the bed is made, the trench muſt be widened a foot and half on each ſide, and to the full depth, to admit of a lining of dung that width and depth to each ſide of the bed; for hot-beds made for theſe plants at either of the above-mentioned times, either on level ground or in a trench, will receive conſiderable benefit by having a lining of hot dung added to each ſide in three or four weeks after making, which will not only

only throw in a fresh heat, but, by being earthed at top, give an additional width for the roots and vines of the plants to extend; observe likewise, that if more than one range of hotbeds are intended, make them one before another in a parallel direction, allowing a space of four or five feet between, which, if afterwards entirely filled up as high as the ridge with hot dung and earth, will be of great advantage to the plants.

The ridge or ridges being made, then, according to the rules and precautions exhibited in the hand-glass crop of cucumbers, prepare to earth it with the proper compost for the reception of the plants, first marking out with sticks the places for the glasses, in a row along the top of the bed, at a yard and half distance; and then, on each place where the glasses are to stand, lay about a wheel-barrow full of mould in a hill fifteen inches high at least, and wide enough for a hand-glass, for this depth of earth is as necessary here as in the frame crops, covering the other parts of the bed between the hills only three inches deep at present, that the burning steam and heat may have due vent, yet to prevent it from evaporating too suddenly; it is afterwards to be gradually earthed almost as high as the top of each hillock: as soon as the bed is thus earthed set on the glasses, one upon each hill of earth, covering the whole with mats at night, to draw up the heat the sooner, and in a day or two the earth will be warm enough to receive the plants.

When the earth, therefore, under the glasses is properly warmed by the dung, then, having previously watered the pots of plants the day before, that the earth may adhere in a ball about their roots, proceed to plant one pot of two plants under each glass, removing the plants out of the pots with a ball, in the manner directed in the early cucumber hot beds; and, levelling the top of the hillocks broad enough for each glass to stand, make a wide hole in the middle, and plant the ball of plants, giving directly a moderate watering, and put on the glasses, which must remain constantly over the plants, and be covered every night for a month or two, & in all bad weather, with mats.

They being now ridged out, observe, if their removal causes them to flag their leaves at the approach of the sun, it is necessary to indulge them with a moderate shade the first three or four days, when sunny, or till they stand the sun fully without flagging.

Fresh air must also be occasionally admitted in the warmest time of every fine day, by tilting the warm side of the glasses an inch, or a little more or less, according to the heat of the bed & temperature of the weather, having particular attention to shut them down close in due time in the afternoon, or as soon as the weather changes cold, keeping them close on nights; also in all unfavourable weather in the day time, unless there is a very great steam, when, during its continuance, the glasses must not be kept too close; and, if the weather is then cold or windy, the place where they are tilted may be defended with a mat; observing, as the warm weather advances, and the plants make progress in growth, a larger portion of fresh air must be admitted, to harden the runners gradually, in order to be trained out from under the glasses in June.

Cover the glasses and the whole surface of the bed every night with large mats, which must constantly be practised until the beginning or middle of June, or longer, if cold weather renders it necessary.

Likewise, in all heavy or cold rains, at any time, night or day, from the time of ridging out to the maturity of the fruit, particular care should be taken to defend the whole ridge, by a good covering of mats, for much wet would ruin the crop.

Waterings in warm weather once a week or fortnight, in moderate quantities, may be necessary, according to the rules mentioned in the frame crops.

In a week or fortnight after ridging out, when the heat of the bed is become moderate, begin to earth the whole gradually almost as high as the top of the hills on which the plants stand, pressing it down from time to time, that it may retain its moisture the longer, so as the plants may not require much water, raising the whole nearly equal with the summits of the hillocks, preserving the middle of each rather highest, to prevent moisture from soaking to the main stem, &c. as formerly cautioned.

Lining the ridges will be necessary

in about three weeks after they are made; this ought not to be omitted, eſpecially to thoſe made in April, or early in May; and having for this purpoſe a quantity of well prepared hot dung, add to each ſide of the bed a foot and half width at leaſt, and full as high as the dung of the bed, and directly earth it at top to the thickneſs of that on the ridge; and thus, by the addition of the linings, that beſides the advantage of renewing the heat, it widens the bed to about ſeven feet, and forms a fine ſcope for the fibres and vines of the plants; obſerving, if there are two or more ridges ranging parallel, that if the whole ſpace between was afterwards gradually filled up with hot dung and mould, it would prove ſtill more beneficial to the plants.

Having directed ſtopping the plants at the firſt joint to procure lateral runners, if theſe laterals are alſo ſtopt at the third joint they will more ſpeedily furniſh a farther ſupply for bearing, as obſerved of thoſe in the frames.

About the end of May, or beginning of June, the firſt ridged-out plants will have nearly filled the glaſſes with their runners, at which time do not omit indulging them with a large portion of free air at all opportunities, by tilting the glaſſes every mild day two or three inches high, or in proportion to the temperament of the weather, ſo as to ſtrengthen the runners, and harden them by degrees to the full air, which, in June, when ſo much advanced in growth that they can be no longer contained within the glaſſes, muſt be trained out; the glaſſes muſt then be raiſed three inches on every ſide, on props, as for the cucumbers, and the runners trained out with regularity; but if ſome dry reeds are previouſly ſpread upon the ſurface of the bed, for the vine to run upon, it will preſerve them and the young fruit from the damp of the earth; obſerving, the glaſſes are to remain conſtantly over each hole of plants, to protect the main ſtem and principal roots the better from wet and other inclement weather, but are now to remain day and night ſupported on props, as above: continue alſo the nightly covering of mats for the firſt fortnight, at leaſt, after the plants are trained from under the glaſſes, to protect the tender vines till inured to the full air.

Obſerve, likewiſe, that as melons are rather impatient of copious moiſture, it is adviſeable, after being thus trained out, to protect them with great care from exceſſive rains and cold, at all times, day or night, by proper covering; the moſt effectual means for this purpoſe is, to place oiled paper frames over the ridges, as ſoon as the vines are trained out; however, in default of theſe conveniencies, we would adviſe to arch the bed over with hoops or rods, &c. juſt to the height of the hand-glaſſes; ſo having good thick mats or canvas cloths always ready to draw over the arches, in time of heavy or cold rains, and bluſtering winds, will be found of very conſiderable advantage, ſince a few hours violent rain often injure the plants ſo greatly, that they never after recover, ſo as to produce handſome fruit, nor bring any tolerable crop to perfection.

But when the beds are covered with paper frames, theſe remaining conſtantly on the beds, effectually defend them at all times, and admit a due portion of light, &c. to the plants.

If, however, you uſe only mats or canvas, to cover occaſionally in cold nights and bad weather, let theſe be always taken wholly off betimes every fine morning, or as ſoon in the day as the weather is favourable.

In June and July the plants will ſpread their runners all over the bed, and will ſhew fruit abundantly, at which period of ſhewing fruit very little water ſhould be given, eſpecially if there is a proper depth of earth on the beds, but in very hot & dry weather, after the firſt tolerable ſhew of fruit is fairly ſet, and begin to advance in magnitude, a moderate watering once a week, or ten or twelve days, whilſt the fruit are taking their growth, will encourage them, promote their ſize, and encreaſe the ſubſtance of their fleſh, being careful to apply the water moſtly towards the ſides of the bed to the extreme fibres, ſo as to preſerve the main ſtem and principal roots from receiving too much wet; and be ſure never once to over-water the beds, which might prove of very bad conſequence; but for the greater convenience of watering at this period, a deep drill may be drawn around the outſides of the bed, and the neceſſary ſupply of water poured into theſe drills, whereby the fibres will

will receive its benefit without wetting the leaves, branches, or fruit; but when the fruit is nearly full grown, give as little water as poſſible.

With reſpect to uſeleſs and ſuperfluous or unneceſſary branches or runners, if there be any, it is eligible culture to clear them off occaſionally, to prevent confuſion of vine, and for the proſperity of the fruit, executing it according to the rules laid down for thoſe of the frame plants.

Obſerve alſo the ſame of ſuperfluous fruit, leaving only ſuch a due quantity of the moſt promiſing and beſt-ſituated in each hole, as the plants can be expected to bring to perfection.

During the growth of the fruit, obſerve, that if the ridges are not covered with oiled paper, but only with the hand-glaſſes, &c. and the weather ſhould prove rather unfavourable or wettiſh, and that many of the fruit are ſituated on the advanced vine without-ſide of the glaſſes, it is adviſeable either to move the fruit gently under their own reſpective glaſſes; or rather, where there are any ſpare glaſſes, bring theſe and place over the fruit, contriving each glaſs to cover as many as may be convenient; for it is neceſſary thus to protect theſe fruit from injury of weather, ſupporting each glaſs two or three inches high on props; and this ſhelter of the glaſſes will greatly improve the ſize and flavour of the fruit: but in unfavourable ſeaſons oil'd paper frames are the moſt effectual, becauſe, being the placed all over the ridge, they defend plants alſo, as well as the fruit, both from cold and wet; or, in cold wet ſeaſons, if there are any ſpare garden-frames and lights, theſe might be placed over the ridges, as ſoon as they are at liberty in June, July, or Auguſt, ſo to defend the plants and fruit the remainder of the ſummer, by ſhoving on the lights in all unfavourable weather, day or night.

When the fruit is encreaſed ſomewhat conſiderably in growth, it is proper to turn them every three or four days, that they may ſwell equally, and each ſide have an equal benefit of the ſun.

Their ripening is determinable by the appearance of maturity, mentioned in the early crop, obſerving alſo the ſame rules as there adviſed in cutting them for table.

Melons are alſo fruited in great perfection under oiled paper frames, by placing them over thoſe ridges of plants which are ridged out in April and May, for they will not ſucceed in earlier crops, but for the crops juſt mentioned, they are conſiderably the moſt eligible ſhelters to place over the ridges in the middle or latter end of May, or beginning of June, after the plants have filled the hand-glaſſes, theſe being then previouſly removed entirely away, and the paper frames placed upon the bed; for theſe frames being made of due width and proper length to cover the whole ridge, and the paper being well oiled with linſeed-oil, to render it proof againſt wet, and more pellucid or tranſparent to admit the rays of light and heat in a proper degree, that they are continued conſtantly upon the ridges, whereby the plants are at all times protected from all inclement weather, either wet, wind, cold, or heat, as, although the paper admits the rays of light, &c. yet it, at the ſame time, affords the moſt agreeable ſhade from the ſcorching ſun.

Theſe frames are formed either like the roof of a houſe, or archways, like the tilt of a waggon, four or five feet wide, ten long, and a yard high, framed of thin ſlips of wood and lath, or broad hoops, &c. but thoſe made ridge-faſhion with two ſloping ſides, in the manner of the ridge of a houſe, are rather the moſt eligible form, becauſe on one ſide may be made two pannels, to open with hinges towards each end, and each pannel about two feet wide, being convenient for giving air, and other neceſſary work: in either of the above forms the frames are conſtructed in an open manner, having the ribs or ſpars, a foot or fifteen inches aſunder, or at ſuch diſtances as to admit of paſting the ſheets of paper commodiouſly; but previous to paſting on the paper, draw lines of pack-thread, &c. acroſs corner-ways from rail to rail of the frame, drawing other lines interſecting or croſſing the firſt, theſe being neceſſary for ſupporting the paper the more effectually againſt the power of wet and wind: then having ſome ſtrong printing paper, let it be a little damped, that it may not ſink in hollows after it is fixed on the frame; therefore, as ſoon as it is damped, paſte

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it on the frame; two large ſheets will generally range from bottom to top, paſting it ſecurely to the rafters and rails, and ſo as the middle of each ſheet reſts upon the interſections of the pack-thread lines; and when the paper and paſting is thoroughly dry, bruſh the outſide all over lightly with boiled linſeed-oil, then ſuffer the frame to ſtand in a dry ſhed till the whole is perfectly well dried before it is uſed.

But for want of regular made frames, a quantity of hoops or rods might be placed acroſs the ridges of plants arch-ways, ſticking both ends into the earth, about one foot aſunder, & two high, ſo drawing lines of pack-thread along from hoop to hoop, both to ſteady the arches, and help to ſupport the paper; then paſte a quantity of ſtrong paper in large pieces about three or four ſheets in width, and in length proportionable to that of the ridges they are to cover; then oil them with linſeed-oil, and, when thoroughly dry, ſpread them over the hoop-arches, and ſecure them by lines drawn from end to end; and that for the admiſſion of air, and doing other neceſſary work, one ſide of the paper is readily turned up at bottom as far as convenient.

In reſpect to the mode of uſing either of theſe paper ſhelters, the plants are previouſly to be raiſed in hot-beds, under frames and lights, exactly at the time and manner as directed for the hand-glaſs crops, and to be ridged out alſo at the ſame time and manner there mentioned; obſerving, that, in default of hand-glaſſes, theſe paper frames may be uſed as ſoon as the plants are ridged out; but in this caſe the ridging out ſhould not be performed till May: but the moſt ſucceſsful way is, when there are hand-glaſſes ſufficient, to place theſe glaſſes over the plants at firſt ridging out, as directed in the hand-glaſs culture, managing them in the ſame way in every reſpect, till the plants have filled the glaſſes with their runners; then remove the glaſſes away, and place over the paper frames.

When theſe ſhelters are placed over the plants, free air muſt be admitted in proportion to the temperature of the ſeaſon, either by opening the pannels leſs or more, according to the warmth of each day, or by tilting one ſide of the frames at bottom, &c. for the article of freſh air muſt not be omitted at all opportunities, particularly when the plants ſhew fruit, the air being not only neceſſary to ſtrengthen the plants, but alſo to aſſiſt in the impregnation of the fruit, for the reaſons explained in the early cucumber work; and towards the end of June, when the ſeaſon is warm, the frames may be raiſed at bottom about four inches.

It is alſo neceſſary to defend the plants over the above ſhelters with mats every night till towards the middle of June; likewiſe, occaſionally, in all hard rains, day or night.

Theſe paper ſhelters never laſt but one ſeaſon, that is, the paper; but as to the frames, they, with care, will continue uſeful ſeveral years, ſo muſt be freſh papered every ſpring, in proper time to be ready to place over the beds.

Melon plants are generally between three and four months from their firſt appearance till they produce ripe fruit, and they all the time require the conſtant aid of artificial heat, which, though they are fruited in great perfection in that of dung, i. e. dung hot-beds, yet thoſe of tanner's bark being conſiderably of more durable and regular heat, the plants by that aid may ſtill be fruited to greater advantage, and with leſs trouble, becauſe, if made entirely of new tan, no lining, or but very little, will be neceſſary, nor is there ſuch danger to be apprehended from ſteaming or violent heat, as in dung hot-beds; but it muſt be remembered, that the purchaſe of the tan renders theſe kind of hot-beds more expenſive than dung, though, if both theſe materials are obliged to be purchaſed, and the tan can be obtained within a moderate diſtance, there is but an inconſiderable difference in the expence.

But, in caſe of ſcarcity of new tan for the above purpoſe, the waſte or caſt-off bark of the ſtoves, mixed with a quantity of new, might be uſed, provided, however, the old tan is not become quite earthy; ſo mixing one half old to one of new, which will form a moderately ſtrong and durable heat, and will anſwer for beds made not earlier than the middle of February, or beginning of March.

Or, for the latter crops, beds might be formed entirely of caſt-off bark, provided, as above obſerved, it is not become

become very earthy, and its fermenting property not quite exhauſted; which, if not, when freſh worked up, and formed again into a bed, will renew its heat, though in a moderate degree, therefore ſhould not be uſed for beds earlier than March or April, and which, if made in a pit formed of poſt and planking, ſo as to admit of a ſubſtantial lining of hot dung to each ſide in ſix weeks or two months after making, would be an additional advantage to the plants.

Obſerve, that either the above-mentioned bark-beds for the culture of melons, muſt be made in ſome kind of pit, or frame, to confine the bark, which otherwiſe could not be formed into a bed, or, in default of ſuch a pit, one might be formed of poſt and planking, of width and length for one or more large three-light frames, and three feet and a half deep, to contain that ſubſtance of bark, and may either be ſunk half way in the ground, or not ſo much, according as the ſoil is dry or wet; but it would be moſt convenient to have it not ſunk more than a foot, for the advantage of adding a lining of hot dung to the ſides, if there ſhould be occaſion; I would therefore obſerve, that a planked pit, for the culture of melons, may be rather preferable to brick or ſtone, becauſe if you ſhall find it neceſſary to line the beds, by applying hot dung againſt the outſide of the planking, its heat will readily penetrate ſufficiently to recruit the declining heat of the bed; for as the melons are to be planted in the full bed, and not in pots, as practiſed to pine-apple plants, there is no ſtirring up the bark to revive the heat, as in ſtoves, and a lining may probably be neceſſary to thoſe beds, where caſt-off bark is uſed, or perhaps ſometimes one lining to thoſe beds made of new tan, may be of advantage, juſt when the fruit is ſetting and taking their firſt growth; on theſe conſiderations, contrive the pit ſo as to admit of lining the ſides almoſt or quite to the bottom.

The time of year to begin the culture of melons in theſe ſort of hot-beds, is the ſame as mentioned in dung hot-beds, and the plants ſhould be raiſed in a nurſery-bed as there directed; and when of the proper age and ſize, as there obſerved, tranſplant them into the bark-beds to remain to fruit.

Theſe fruiting-beds ſhould be made a fortnight or three weeks before-hand, to acquire a proper heat in due time for the reception of the plants from the nurſery hot-bed, at their proper period of growth. Let the beds be made the full width and length of the pit allotted for them, and three feet at leaſt deep; but if caſt-off bark is uſed, three and a half depth in bark will be requiſite. As ſoon as made, cover the bed with the proper frames and glaſſes, to defend it from rains; and in about a fortnight it will be arrived to a proper temperature of heat; then earth it at top, as directed for the dung-beds, and the earth being warm, ſet two plants with their ball of earth entire, juſt under the middle of each light, give a little water, and manage them according to the former directions.

But if the bed is to be made moſtly of caſt-off bark, as it will be ſomewhat of a mouldering texture, and of but moderate heat, inſtead of earthing it as above obſerved, you may try the ſucceſs of planting intirely in the bark, without any earth at all. Let the bed be of the above-mentioned dimenſions, and covered with the frames and lights, and in about three weeks it will be warm enough either to receive ſeed, or plants, firſt making holes in the middle of the bed, one immediately under the middle of each light, ſix or eight inches deep, and twelve or fifteen broad, fill them with rotten or finely pounded bark, forming each a little hollow, baſon-like, in which either ſow ſeed, and when the plants are a week or two old, thin them to two of the beſt in each hole, and there let them remain to fruit: or, to make the moſt of the bed, put in plants raiſed to a proper age, as in the dung hot-bed culture.

The plants being tranſplanted into either of the above bark hot-beds, obſerve the lights are to be kept conſtantly on, being careful to give the plants a proper ſhare of warm air at all opportunities, as the weather permits, according to the former rules.

It muſt be remarked, that the plants will not require much water in theſe hot-beds, as bark continues to ſupport a fine moiſt heat, of a very agreeable nature to the growth of moſt ſorts of plants, ſo that the melons will be found to ſucceed with a very moderate ſupply

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of water, and the less the better, both for the continuance of the heat of the beds, as well as for the advantage of plants and fruit.

Should you find the heat of the beds considerably declined when the fruit is setting, or taking its first growth, a good lining of hot dung against the outsides of the pit will be very beneficial.

As to saving melon seed, we need only farther observe here, that it should be saved only from the very finest fruit of the respective varieties, & such as have a firm and highly flavoured flesh; this should be particularly observed when the fruit is served at table, and the right seed properly reserved in its own pulp, and sent to the gardener; which, after laying in the pulp a few days, may be washed out, and all the heavy or good seed which sink in the water are to be preserved, dried, and put up for saving.

It will retain its germinative property ten or twelve years, but when from about three to five years old, is in its best perfection for use.

Water MELON. *See* CITRUL.

MELON *Thistle*, [*Cactus.*] This plant is of a very singular structure, being shaped like a melon, having neither visible stem, branches, nor leaves, but appears like a large, roundish, fleshy mass, or lump, sitting close to the earth, and throwing down roots to a considerable depth. There are two sorts, a larger and a smaller; they are both propagated by seed, but require the assistance of a stove.

MELLET. A dry scab on a horses foot.

MERCURY, [*Mercurialis.*] Male and female French mercury; the leaves. These stand among the five emollient herbs; and in this intention are sometimes made use of in glysters. A syrup made from the leaves, given in the dose of two ounces, is said to prove a mild and useful laxative.

There is another sort of mercury growing in woods and hedges, which by some botanic writers, as having the same virtues with the foregoing, and as more palatable, has been lately found possessed of noxious qualities. This may be distinguished from by its being a perennial plant, larger, having its leaves rough, and the stalk not at all branched. The officinal sort is named by Linnæus *mercurialis caule brachiato, foliis glabris*; the poisonous *mercurialis caule simplicissimo, foliis scabris*; it is commonly called dogs mercury.

English MERCURY, [*Bonus Henricus.*] This is met with by road sides, and in uncultivated places. It is ranked among the five emollient herbs, but rarely made use of in practice. The leaves are employed by the common people for healing flesh wounds, cleansing old ulcers, and other like purposes.

Dogs MERCURY. *See* MERCURY.

MET. A strike or bushel.

METHEGLIN. A liquor made with honey and water, or honey and beer fermented together.

MEZERON. *See Spurge* LAUREL.

MEU. *See* SPIGNAL.

METER YARD. A measuring staff.

MICE. Field mice are as numerous as those of the house, and the farmer often finds them as troublesome, and sometimes much more so. There are several species of them; but they are all equally his enemies: all feeding upon his seed-corn and pulse in the same manner: and are all to be destroyed by the same means.

Drier lands are more subject to this kind of vermin than those which lie wet; and of all the kinds of sowing, that under furrow most exposes the seed to them. *Called sowing below hand*

In this case, as the furrows will fall somewhat hollow, they afford a shelter to the mice at the time of their committing all their havock. *Plain*

The farmer seems to contrive for their feasting and safety together in this method; for the corn or other seed lies perfectly exposed to them, and they are not exposed to his eye while they are feeding upon it.

In these lands we have with great concern often traced the path of those devourers, and seen all eaten up, or carried away to some little distance: for under the covert of this manner of tillage they will make their nests and granaries as it were in different places; and the seed shall be found stored up in one of these, that should have covered a great space of ground with its shoot.

The husbandman will by this see a great disadvantage attending that kind of tillage; and he will know in what fields he is most to fear these enemies.

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Thought his manner of ſowing gives the mice an advantage, the other way does not ſufficiently ſecure the corn from them. When it is ſown in the common way and harrowed in, it is better covered; and there is a great deal more trouble for them to get at it: but they are very induſtrious, and in this caſe will dig after it, and tear up and deſtroy a great deal.

When it is ſown under furrow, they begin with it as ſoon as it is in the ground; but when it is harrowed in, they wait for its firſt ſprout. This gives the farmer an advantage, becauſe he knows exactly when he is to expect them; and it is a great article of ſafety to know when to guard againſt the danger.

The careful huſbandman is not in this caſe to wait till he ſees the ſhoot of his ſeed; for the mice have very quick eyes, and they will perceive it a day or two before he does: he is therefore to look to his ground a day or two before the time of its being ſeen covered with the young ſhoot; and then, as he knows the devourers will be about, he is to prepare for their deſtruction.

Traps are a very improper method of getting rid of theſe creatures. There is no way well worth his conſideration but poiſon; and happily for him there are drugs which will anſwer this purpoſe of poiſon to theſe creatures, which are not literally and ſtrictly poiſon to ourſelves. Theſe he is to uſe, and they will ſufficiently anſwer his purpoſe. It would be a diſagreeable thing to be meddling with ratſbane; but there is no harm in handling the ingredients he has to uſe.

In the firſt place let him conſider what fields from their ſoil are moſt likely to harbour mice, and in what places he has known them moſt miſchievous. Let him never ſow theſe under furrow, for that takes from him all opportunity of attacking his enemies: they work under ground as it were, and will never come into the way of his poiſon.

When theſe fields have been ſown otherwiſe, and harrowed over, the mice muſt come upon the ſurface and dig down for the corn, and they will then certainly meet with any thing he lays on the ground for them.

Let him mix up a peck of barley-meal, a pound of powder of white hellebore root, and four ounces of powder of ſtaves-acre; and when theſe are all mixed together by ſifting through a coarſe hair ſieve, add half a pound of honey, and as much milk as will work the whole into a paſte.

Let this be broke into pieces, and ſcatter'd over the field at the time when the mice are known to be coming. They will eat it greedily, and it is certain death to them. There is nothing in any of the ingredients diſagreeable to the taſte when thus mixed; and every morſel of it will be devoured. The mice will be kept from digging after the corn; and at the ſame time killed by the ingredients.

This is the method to be uſed juſt at the time of danger; but the farmer who has a field peſtered with theſe vermin, will do well to be thinking at other times alſo of deſtroying them.

They live at a ſmall depth under ground, and there breed in abundance. The paſſage into their neſt is by a little round hole, and theſe are eaſily ſeen in dry weather.

On theſe occaſions the farmer ſhould go his rounds with a quantity of the paſte before directed: and wherever he ſees a hole throw in a piece. A little trouble of this kind taken from time to time in the heat of ſummer, when the holes are moſt conſpicuous, would utterly root them out.

MIDDING. A dunghill.

MILFOIL, [*Milfolium.*] Milfoil or yarrow. This grows plentifully about the ſides of fields, and on dry commons, flowering greateſt part of the ſummer. The leaves have a rough bitteriſh taſte, and a faint aromatic ſmell. Their virtues are thoſe of a very mild aſtringent, and as ſuch they ſtand recommended in hæmorrhagies both internal and external, diarrhœas, debility and laxity of the fibres; and likewiſe in ſpaſmodic hyſterical affections. In theſe caſes, ſome of the Germans have a very high opinion of this herb, particularly Stahl, who eſteems it a very effectual aſtringent, and in his language, one of the moſt certain tonics and ſedatives. Its virtues are extracted in greateſt perfection by proof ſpirit: water takes up its aſtringency and bitterneſs, but little of its aromatic flavour; tinctures made in rectified ſpirit contain the latter, with little of the former.

The flowers of milfoil are conſiderably ſtronger in aromatic flavour than the leaves; in diſtillation, they yield a ſmall quantity of eſſential oil, of an elegant blue colour.

MIL-DEW. Blights and mill dews have been generally taken to be the ſame thing, which hath begotten much error, and the ways and means uſed for the prevention and cure have miſcarried through the ignorance of the diſeaſe. Mill-dew is quite another thing from blaſting. Mill-dews being cauſed, as ſome ſay, from the condenſation of a fat and moiſt exhalation in a hot and dry ſummer from the bloſſom and vegetables of the earth, and alſo from the earth itſelf, which by the coolneſs and ſerenity of the air is condenſed into a fat glutinous matter, and falls on the earth again, part whereof reſts on the leaves of the oak and other trees, whoſe leaves are ſmooth, and do not eaſily admit the moiſture into them, as the elm or other rougher leaves do, which mill-dews become the principal food of the bees, being of itſelf ſweet, and eaſily convertible into honey.

Other parts thereof reſt on the ears and ſtalks of wheat, beſpotting the ſtalks with a different colour from the natural, being of a glutinous ſubſtance by the heat of the ſun, and ſo binds up the young tender cloſe ears of the wheat, that it prevents the growth and compleating the imperfect grain therein, which occaſioneth it to be very light in harveſt, and to yield a poor lean grain, for which reaſon many reckon the bearded wheat not ſo ſubject to it, as the other, the beards defending the ear from it.

Some think mill-dews to proceed from vapours ariſing from the dung, and ſo falls upon the corn; becauſe lands new dunged are the moſt ſubject to it.

But if, after the mildew falls, a ſhower ſucceeds, or the wind blows ſtifly, it waſheth or ſhaketh it off, are the only natural remedies againſt this diſtemper.

Some adviſe in the morning, after the mill-dew is fallen, and before the riſing of the ſun, that two men go at ſome convenient diſtance in the furrows, holding a cord ſtretched ſtreight betwixt them, carrying it ſo that it may ſhake off the dew from the tops of the corn, before the heat of the ſun has thickened it.

It is alſo adviſed to ſow wheat in open grounds, where the wind may the better ſhake off the dew, this being looked upon to be the only inconveniency incloſures are ſubject unto, but it is evident that the field lands are not exempted from mill-dews, nor ſmut, where it is more than in incloſed lands.

Some ſay, that lands that have been ſubject to mill-dews many years, have been cured by ſowing of ſoot with, or juſt after, the corn. *See* BLIGHT.

Mr. Miller takes the true cauſe of the mill-dew's appearing moſt upon plants which are expoſed to the eaſt, to proceed from a dry temperature in the air when the wind blows from that point, in which caſe it ſtops the pores of plants, and prevents their perſpiration, whereby their juices are concreted upon the ſurface of their leaves; and that concretion being of a ſweetiſh nature, inſects are incited thereto. Thoſe inſects, finding their proper nutriment, depoſit their eggs, and multiply ſo faſt as to cover the whole ſurfaces of plants, and, by corroding their veſſels, prevent the motion of the ſap. He thinks it very probable, that the excrements of theſe inſects may enter the veſſels of plants; and, by mixing with their juices, may ſpread the infection all over them; for it is obſerveable, that whenever a tree has been greatly infected by this mill-dew, it ſeldom recovers in two or three years, and many times never is entirely clear from it after. But he by no means allows theſe inſects to be the firſt cauſe of this diſtemper, as ſome have miſtakenly imagined. It is obſervable, that mill-dews and blights frequently attack only one ſort of corn, or fruit, and leave the other ſpecies unhurt.

Count Ginanni diſtinguiſhes two principal kinds of mill-dew, one of which ſpots the blades and ſtems of corn, and dries upon them, without ever producing any powder; but penetrates through their outward covering, and entirely dries them up. This is generally of a pale colour, either reddiſh, yellowiſh, purpleiſh, or blackiſh, and ſometimes a variegated mixture of many colours. The other ſpeedily covers the plant with a moiſt and thickiſh ſubſtance, which afterwards becomes dry, and turns into a powder, of one or other of the above-mentioned colours, but moſt commonly reddiſh

diſh or yellowiſh. This, ſays he, always fades, corrodes, and ſeparates the outer ſkin from the plant. The former extends to every ſpecies of corn; but the latter is almoſt peculiar to wheat in the blade; though it is ſometimes ſeen upon oats and barley. Some may perhaps reckon, as a third ſpecies of mildew, a yellowiſh ſubſtance, or powder, ſometimes ſeen under the membrane of the blades of corn, where it raiſes bliſters, makes many little holes and cracks, and corrodes the fibres; and perhaps they may not be wrong in accounting it ſuch.

He is confident that this diſtemper is the rubigo of the Latins. *See* HONEY-DEW.

MILK. Milk is a fluid ſeparated from the nutritious juice of bodies, called their chyle; depoſited by nature in the breaſts or udders of female animals, during their pregnancy, and for the nouriſhment of their young.

After the young is born, it becomes in greater abundance: and it will be prepared and furniſhed by nature in that plentiful manner, ſo long as it is ſucked by the young, or any other way drawn at times; but when no uſe is made of it, the ſupply ceaſes; and the milk, as the expreſſion is, dries up of itſelf.

Milk is very much of the nature of what is called chyle, that is, the nutritious juice ſeparated from our food, and intended for the ſupport and nouriſhment of our bodies. All our foods tend to the formation of chyle, and the great purpoſe of nature in their digeſtion is the furniſhing of a ſufficient ſupply of it; for on this reſtoration and preſervation of the fabrick depend.

Chyle is a thin white juice, conſiſting of the fineſt and moſt nouriſhing part of our food; and milk is, properly ſpeaking, nothing more than a thicker and richer chyle: when the two are compared together, there is found but little difference between them; therefore we may very reaſonably conclude, that milk not only is made of chyle, but that it is made by a very natural and eaſy procedure; for there ſeems nothing more to have been done than this, that a quantity of chyle has been brought into the glands of the breaſts, and there ſome of its watery parts have been ſeparated from it; and the remainder becoming richer by that means, has been left there ready to be drawn by the mouth of the young, or otherwiſe, in the form of what we call milk.

When milk is viewed with powerful glaſſes, it does not look an uniform white liquor, as it appears to the naked eye, but is diſcovered to conſiſt of two different matters; the one white and rich, which is kept ſeparate in round drops, and the other thin and watry: this laſt is the more large quantity, and the other drops ſwim in it.

In the ſame manner when we make butter and cheeſe, we force a ſeparation of thoſe parts, which we could not ſee to be diſtinct and different in the milk, though this common operation ſhews they were ſo: the rich part makes the butter and cheeſe, and the other runs off poor and watery in the butter milk and the whey.

Theſe three parts are, 1. the oily; 2. the curdy; and 3. the watery. The oily are, as we have ſeen, the buttery parts; the curdy are the cheeſy; and the watery are the wheyey.

Nothing but the force of nature in the body of the animal, could work and blend theſe perfectly into one rich and nouriſhing fluid, fit for the tender ſtomach of the young. We find they are ſo mixed there; and that they continue mixed in that manner for ſome time, after the milk is out of the body; but when they have once ſeparated, either naturally or by art, we ſhall never be able to mix them ſo again. Butter, cheeſe, and whey, were all contained in the milk, and nature united them in that manner; but all our chymiſtry will never be able to mix butter, cheeſe, and whey, into milk again.

Milk differs extremely in various creatures, according to their diet, their conſtruction of body, and the particular ſtructure of thoſe parts in which it is formed.

The firſt and great end of nature in the production of milk, we have ſhewn, was for the nouriſhment of the young; ſhe knows, or to uſe more proper words, God, whoſe immediate and regular care in the guidance of the world is what we call nature, knows beſt the ſtructure of thoſe young and tender bodies he forms; and he has accordingly provided, in the breaſts and udders of their dams, a nouriſhment ſuited to them,

Thus in all creatures, milk is, as we have ſhewn, the chyle or nutritive juice of the parent's body, formed into that condition by the ſeparation of its watery parts; but in ſome creatures, more of thoſe watery parts are ſeparated, and in others fewer, according to the ſtructure of thoſe veſſels; and it muſt be according to what we ſee of their food, that in ſome the chyle comes more watry to thoſe glands that ſeparate it, than it does in others: why otherwiſe ſhould it be, that the milk of the cow ſhould be ſo rich, and that of the aſs ſo poor, when both eat the graſs of the ſame paſture.

Let not any be ſurpriſed at the calling aſſes milk poor in compariſon of cows, from an opinion that it muſt be richer, becauſe of the uſe phyſicians make of it to reſtore decayed conſtitutions: it is becauſe it is poorer they prefer it, for the ſtomach in thoſe perſons is not able to bear the richer milk of the cow.

According therefore to what we ſee in nature, it is plain that the different conſtruction of body, and different fabricks of the veſſels formed for ſeparating and preparing milk, occaſion that liquor to be richer in ſome and poorer in others. This is all the real difference between the milk of one creature and that of another: having premiſed this, we ſhall proceed to conſider, ſeparately, thoſe ſeveral kinds that any way come under the farmer's conſideration.

Theſe are principally four; the cows, the aſſes, the goats, and the ſheep: a fifth might be added, for the milk of the mare is uſed in ſome places; but the firſt named kind is the great and principal concern of the farmer, and the ſupport of the dairy.

Nothing can be more rational than the giving ſuch milk as aſſes, and any other kind that can be borne upon the ſtomach, as a reſtorative: for we have ſhewn already, that milk is only chyle under a particular form; therefore, when the ſtomach will bear it, it is nouriſhment ready formed, and fit for immediately mixing with the blood, to anſwer all the purpoſes of life.

This is properly a method of reſtoring nature: it is coming in to her aſſiſtance when ſhe is not able to furniſh nouriſhment, by bringing her that of ſome other animal ready formed, to ſupply the place.

As to the preference of aſſes milk above that of the cow, in the relief of of human kind, the reaſon is ſhewn in nature. Let the milk of our own ſpecies be compared with that of a cow, and that of an aſs; and the aſſes milk will be found to reſemble it much more than the other.

Cows milk is in general by much the richeſt of all the kinds we know, and the moſt profitable: its ſeveral products in butter and cheeſe, being, like its natural condition as milk, preferable to thoſe of all others, not only in quality, but in quantity: two articles which, when they concur, as they do perfectly in this inſtance, conſtitute the higheſt uſe and value to the owner.

The milk of the cow is ſuppoſed to vary according to the colour of the ſkin; but this is an idle obſervation. There is an old ſaying among the farmers, that red cows give the beſt milk; and another, that black cows bring the beſt calves: but we can, from fair trial, and repeated experience, aſſure our readers that there is not in the leaſt truth in either of theſe maxims: he is to look upon them as old wives tales, and no otherwiſe. We have ſeen as much and as good milk from black cows, as ever produced from red; and we may call every butcher to witneſs, that the value of the calf is not in the leaſt dependent upon the colour of the cow. *See* Cow.

Milk appears to be a vegetable juice, with little of an animal nature.

New milk mixes uniformly with common water, the mineral chalybeat waters, wines, and malt liquors that are not acid, weak vinous ſpirits, ſolutions of ſugar, ſoaps, and neutral ſalts; but not with oils expreſſed or diſtilled. Acids, both mineral and vegetable, coagulate it; as alſo do fixt and volatile alcalies, and highly rectified ſpirit of wine: the curd made by acids is reſolved again by alcaline liquors, as that made by alcalies likewiſe is by acids. Neutral ſalts, nitre in particular, preſerve it from coagulating ſpontaneouſly; and likewiſe render it leſs eaſily coagulable by acids.

The human milk is the ſweeteſt of theſe liquors, and that of aſſes next to it: this laſt is the moſt dilute of them all: on ſuffering it to coagulate ſpontaneouſly, the curd ſcarce amounted to two drams from twelve ounces, whilſt that

that of cows milk was five times as much: the coagulum of aſſes milk, even when made by acids, forms only into fine light flakes which ſwim in the ſerum; that of goats milk concretes into more compact maſſes which ſink.

Upon evaporating twelve ounces of	There remained of dry matter drams	From which water extracted a ſweet ſaline ſubſtance, amounting, when exſiccated, to drams
Cows milk	13	$1\frac{1}{2}$
Goats milk	$12\frac{1}{2}$	$1\frac{1}{2}$
Human milk	8	6
Aſſes milk	8	6

The ſaline ſubſtance obtained from aſſes milk was white, and ſweet as ſugar; thoſe of the others brown or yellow; and conſiderably leſs ſweet; that of cows milk, the leaſt ſweet of all. It appears therefore, that aſſes milk contains more ſerum, and much more of a ſaccharine ſaline matter, than thoſe of cows and goats; and that the two latter abound moſt with unctuous groſs matter: hence theſe are found to be moſt nutritious, whilſt the firſt proves moſt effectual as an aperient and detergent.

The inſpiſſated reſiduum of milk, digeſted with about as much water as was waſted in the evaporation, yields an elegant kind of whey, more agreeable in taſte, and which keeps better, than that made in the common manner. This liquor promotes the natural ſecretions in general, and if its uſe is duly continued, does good ſervice in ſcorbutic, and other diſorders, proceeding from thick phlegm and obſtructions of the viſcera.

There are conſiderable differences in the milk of the ſame animal, according to its different aliment. Dioſcordeis relates, that the milk of goats, who fed on the ſcammony plant and ſpurges, proved cathartic: and examples are given in the Acta Haffnienſia of bitter milk from the animal having eat wormwood. It is a common obſervation, that cathartics and ſpirituous liquors given to a nurſe affect the child: and that the milk of animals feeding on green herbs, is much more dilute than when they are fed with dry ones. Hoffman carries this point ſo far as to direct the aſs (the animal, whoſe milk he in all caſes prefers) to be dieted according to the diſeaſe which its milk is to be drank for.

MILKING. The beſt and moſt commended hours for *Milking* are, indeed, but two in the day; that in the ſpring and ſummer, which is the beſt ſeaſon for the dairy, is between five and ſix in the morning, and ſix and ſeven in the evening; and though nice and curious houſewives have a third hour between them, as between twelve and one o'clock in the afternoon; yet the better experienced allow not thereof, ſaying, that two good meals of *milk* are ever better than three bad ones. In performing the work itſelf, the woman muſt ſit on the near ſide of the cow, gently at firſt handle and ſtretch her dugs, and moiſten them with milk, that they may yield out the milk the better, and with leſs pains; neither muſt ſhe ſettle herſelf to milk, nor fix her pail firm to the ground, till ſhe ſee the cow ſtand firm and ſure; but be ready, upon any motion of the cow, to ſave her pail from over-turning: but when ſhe ſees all things anſwerable to her deſires, ſhe ſhall then milk the cow boldly; and deſiſt not to ſtretch and ſtrain her teats, till not a drop more of milk will come from her, it being the worſt point of houſewifery imaginable to leave a cow half milked; for beſides the loſs of the milk, it is the only way to make a cow dry, and utterly unprofitable for the dairy: neither ſhould the milk-maid, while at her work, do any thing raſhly or ſuddenly to affright the cow, or maze her; but as ſhe comes gently, ſo with all gentleneſs to depart.

MILK VETCH. Liquorice vetch, wild liquorice.

Baſtard MILK VETCH. *See* BASTARD.

MILKWORT. [*Polygala.*] This is a perennial plant, growing wild in many parts of England. There are ſeveral ſpecies of this plant kept in gardens, which are natives of France, Auſtria, and America.

MILLET, [*Milium.*] This grain was originally brought from the eaſtern countries,

See Panic

countries, where it is ſtill greatly cultivated, from whence we are furniſhed annually with this grain, which is by many perſons greatly eſteemed for puddings, &c.

It muſt be ſown the beginning of April upon a warm dry ſoil, but not too thick, becauſe theſe plants divide into ſeveral branches, and ſhould have much room; and when they come up, they ſhould be cleared from weeds; after which they will, in a ſhort time, get the better of them, and prevent their future growth. In Auguſt theſe ſeeds will ripen, when it muſt be cut down and beaten out, as is practiſed for other grain; but when it begins to ripen, if it be not protected from birds they will ſoon devour it.

MILL MOUNTAIN. *See Purging* FLAX.

MILT-PAIN. Is a diſeaſe in hogs, proceeding from greedineſs of eating maſts, and is known by their reeling and going on one ſide; to cure which, give him the juice of wormwood in a little honied water.

MILTING. Is an evil in beaſts, ariſing from a blow, &c. The ſigns whereof are, that they will lay themſelves down, riſe again preſently, and cannot reſt, but ſit in pain: The cure is, to take ſtone pitch, pound it ſmall, and blend the ſame with ale, ſaffron, pepper, and give it him, and walk him a little after it.

MILT-VAST. *See* SPLEENWORT.

MINT, [*Mentha.*] The leaves of mint have a warm, roughiſh, ſomewhat bitteriſh taſte; and a ſtrong, not unpleaſant, aromatic ſmell. Their virtues are thoſe of a warm ſtomachic and carminative: in loſs of appetite, nauſeæ, continual retchings to vomit, and (as Boerhaave expreſſes it) almoſt paralytic weakneſſes of the ſtomach, there are few ſimples perhaps of equal efficacy. In colicky pains, the gripes to which children are ſubject, dycenteries, and other kinds of immoderate fluxes, this plant frequently does good ſervice. It likewiſe proves beneficial to ſundry hyſteric caſes, and affords an uſeful cordial in languors and other weakneſſes conſequent upon delivery. The beſt preparations for theſe purpoſes are, a ſtrong infuſion made from the dry leaves in water (which is much ſuperior to one from the green herb) or rather a tincture or extract prepared with rectified ſpirit. Theſe poſſeſs the whole virtues of the mint: the eſſential oil and diſtilled water contain only the aromatic part; the expreſſed juice only the aſtringency and bitterneſs, together with the mucilaginous ſubſtance common to all vegetables.

It is propagated by parting the roots in the ſpring, or cuttings, during any of the ſummer months.

There are ſome people who are very fond of mint ſallad in winter and ſpring, in order to obtain which, they take up the roots before Chriſtmas, and plant them upon a moderate hot-bed cloſe together, covering them with fine earth an inch thick, and cover the bed either with mats or frames of glaſs. In theſe beds the mint will come up in a month's time, and be ſoon fit to cut for that purpoſe.

When the herb is cut for medicinal uſe, it ſhould be done in a very dry ſeaſon, juſt when it is in flower; for if it ſtand longer, it will be not near ſo handſome, nor ſo well taſted; and if it be cut when it is wet, it will change black, and be little worth; this ſhould be hung up to dry in a ſhady place, where it may remain until it be uſed.

Water MINT. [*Mentha Aquatica.*] Horſemint.

Horſe MINT. *See* HORSE MINT.

Pepper-MINT. *See* PEPPERMINT.

Cats MINT. *See* CATMINT.

MISLETOE, [*Viſcus.*] This is a buſhy plant, growing on the trunk and branches of different trees: that met with on the oak is generally preferred, perhaps on account of its being the moſt rare. It may, however, be propagated by art on any trees by rubbing the berries againſt the bark.

MIST. A meteor, conſiſting of groſs vapours floating near the ſurface of the earth.

The bluiſh miſt, which we ſometimes ſee on our fields and paſtures in a morning, though often innocent, yet has been in ſome places found to be the actual cauſe of murrain, and other fatal diſeaſes among the horned cattle.

MITHRIDATE MUSTARD. *See* MUSTARD.

MOAR-LOVRE. A term uſed to expreſs a peculiar diſtemperature of corn, generally comprehended under the common term of a blight. In this caſe the earth ſinks away from the roots of

of the corn, and leaves the plant ſtanding in great part above ground with naked roots; theſe being too weak to ſupport the ſtalks, the plants fall, and the ears become light. This is a diſtemperature peculiar to corn growing on light and looſe lands.

The remedy is this: turn a ſhallow furrow againſt the rows, when they are ſtrong enough to bear it, and the mould is fine and dry; the motion of the ſtalks with the wind will draw in this looſe powder, and it will ſpread itſelf equally among all the rows, ſettle about the roots, and cover them.

MOCK ORANGE. A ſpecies of the Syringa.

MOCK PRIVET,] *Phillyrea.*] There are ſeveral ſpecies of this plant which are evergeen ſhrubs, flowering in March. The propagation is by ſeed, ſown in autumn, or by layers in autumn or ſpring.

MOLE. Theſe are miſchievous ſubterraneous animals. We ſee their hills in paſtures, where they work under ground at a ſtrange rate, and are very hurtful; but the damage they do to corn is much greater; and frequently comes upon the farmer quite unexpectedly. He knows that the ants and mice will eat the grain when newly ſowed, and that the ſlugs will deſtroy it when juſt ſhot up; but when theſe times are over, he is at reſt on thoſe heads. On the contrary, there is no time at which the mole may not deſtroy his crop.

This creature, formed for living under ground, preys upon the roots of plants, and is fond, in a particular manner, of thoſe of corn; but beſide the quantity they deſtroy by eating, they damage a vaſt deal more by undermining the ground. It is hardly to be conceived what havock one way or other a ſingle mole will make in a field of corn, or in how little time; one of theſe creatures will burrow through a third part of an acre in a day; and this perhaps at a time when the corn is half grown.

The drieſt lands are the moſt ſubject to theſe animals, but they will get into any; and there is no creature of all the number to whoſe injuries the farmer is expoſed, againſt which it is ſo difficult to guard. There is no foreſeeing when they will come; but it is very important to know of their being in the ground as ſoon as poſſible, in order to ſtop the deſtruction.

The only caution in the farmer's power is to obſerve whether there are any there at the time of plowing; and if there be, he is to uſe every poſſible method of deſtroying them: if not, he is to examine whether the lands neareſt his own every way be inteſted by them, or clear from them.

The freer they are the more likely he is to be clear of them; but there is no certainty from this; for there are times when they will come without any poſſible manner of gueſſing from whence; and they will ſometimes have done irreparable miſchief, before it is diſcovered they are in the place.

The next caution to this, of knowing when to expect them, is the deſtroying them when found. They are a very defenceleſs creature, and not very cunning. Their only ſecurity is the being hid under the ſurface; and they betray themſelves in that retreat by the manner of their working.

The huſbandman, whoſe crop is ſuffering by them, is to look for the tracks where they have gone; and theſe he will eaſily ſee by the different colour of the new turned up earth.

He is to follow the courſe of one of theſe paſſages; when he has got ſight of it, he is to dig croſs holes in it, and to watch the going out or coming back of the mole. And wherever it is caſting, to ſtrike it through with an iron inſtrument made for that purpoſe. The traps for catching them are alſo common, cheap, and of a plain ſtructure. Indeed the deſtruction of this creature is ſo eaſy, and ſo many are ready to undertake it at a trifling price, that the caution we firſt gave is the moſt important; which is, the finding as ſoon as poſſible where they are growing miſchievous.

In ſome places the farmers content themſelves with driving them out of their fields; and this is to be done by ſmoaking them, as other creatures of a leſſer kind are deſtroyed.

To this purpoſe they open their paſſages in ſeveral places, and burn heaps of ſtraw and ſome brimſtone. This will drive the moles out of a corn field ſpeedily enough; but this is not a ſafe or eligible method. It is only ſending

ſending them out of one's own ground into one's neighbours, who may in the ſame manner drive them back again. This is only a temporary relief; and there is none wiſe or effectual but their deſtruction.

MOLTEN-GREASE. A fat or oily diſcharge with the dung, which ariſes from a colliquation, or melting down of the fat of the horſe's body, by violent exerciſe in very hot weather.

It is always attended with a fever, heat, reſtleſſneſs, ſtarting and trembling, great inward ſickneſs, ſhortneſs of breath, and ſometimes with the ſymptoms of a pleuriſy. His dung will be extremely greaſy, and he will fall into a ſcouring; his blood will have a thick ſkin of fat over it when cold, of a white or yellow hue, but chiefly the latter; the congealed part, or ſediment, is commonly a mixture of ſize and greaſe, which makes it ſo extremely ſlippery, that it will not adhere to the fingers, and the ſmall portion of ſerum feels alſo ſlippery and clammy. The horſe ſoon loſes his fleſh and fat, which probably is diſſolved and abſorbed into the blood; and thoſe that ſurvive this ſhock commonly grow hide-bound for a time, their legs ſwelling both before and behind, and continue in this ſtate till the blood and juices are rectified; and if this is done not effectually, the farcy, or ſome obſtinate ſurfeit, generally follows very difficult to remove.

In the firſt place bleed plentifully, and repeat it two or three days ſucceſſively in ſmaller quantities; two or three rowels ſhould alſo be immediately put in, and cooling emollient clyſters daily thrown up, to abate the fever, and drain off the greaſy matter from the inteſtines. By the mouth give plenty of warm water, or gruel, with cream of tartar, or nitre, to dilute and attenuate the blood; which in this caſe is greatly diſpoſed to run into grumes, and endanger a total ſtagnation.

When the fever is quite gone off, and the horſe has recovered his appetite, gentle aloetic purges ſhould be given once a week, for a month or ſix weeks, in order to bring down the ſwelled legs; but if the purgative ingredient does not exceed half an ounce, or ſix drams of fine aloes, it only opens the belly gently; and, with other medicines joined with it, paſſes into the blood, acts as an alterative, and operates both by urine and perſpiration; as will appear by the horſe's ſtaling plentifully; and the kindly feel of his ſkin. To this end give the following, which, repeated for ſome time, will intirely remove this diſorder.

Take of ſuccotrine aloes ſix drams, of gum-guaiacum powdered half an ounce, of diaphoretic antimony, and powder of myrrh, each two drams: make into a ball with ſyrup buckthorn.

Or it may be prepared with an ounce of aloes, ſix drams of diapente, and a ſpoonful of oil of amber.

Theſe will ſeldom take a horſe from his buſineſs above two or three days in a week; neither will he loſe his fleſh or appetite with them, which cannot be obtained by any other method of purging, and gives this greatly the preference in many cafes.

Two ounces of nitre mixed up into a ball with honey, and a dram of camphire, will alſo be found an excellent medicine for this purpoſe, as it will powerfully attenuate the blood, and promote the due ſecretions; to which end it ſhould be given every day for a fortnight or three weeks.

MONOPETALOUS. Formed of one leaf.

MONEYWORT. *See* HERB TWOPENCE.

MONKEY BREAD. *See* SOUR GOURD.

MONKSWOOD. *See* WOLF'S BANE.

Monk's RHUBARB, [*Rumex Alpinus.*] A ſpecies of the dock. *See* DOCK.

MOONSEED, [*Meniſpermum.*] This is a native of North America, which is propagated by layers and parting the roots.

MOON BLIND. *See* BLIND.

MOON WORT. *See* HONESTY.

MOSSES, [*Muſci.*] The plants of this order.

MOSS *on Trees*, is a diſtemper of very bad conſequence to their increaſe, and much damages the fruit of the trees of our orchards.

The preſent remedy is the ſcraping it off from the body and large branches, by means of a kind of wooden-knife, that will not hurt the bark; or with a piece of rough hair-cloth, which does very

very well after a ſoaking rain. But the moſt effectual cure is, the taking away the cauſe. This is to be done by draining off all the ſuperfluous moiſture from about the roots of the trees, and may be greatly guarded againſt in the firſt planting of the trees, by not ſetting them too deep.

If trees ſtand too thick in a cold ground, they will always be covered with moſs; and the beſt way to remedy the fault, is to thin them. When the young branches of trees are covered with a long and ſhaggy moſs, it will utterly ruin them; and there is no way to prevent it, but to cut off the branches near the trunk, and even to take off the head of the tree, if neceſſary, for it will ſprout again; and if the cauſe be in the mean time removed by thinning the plantation, or draining the land, the young ſhoots will continue clear after this.

If the trees are covered with moſs, in conſequence of the ground's being too dry, as this will happen from either extreme in the ſoil, then the proper remedy is, the laying mud from the bottom of a pond or river, pretty thick about the root, opening the ground to ſome diſtance and depth to let it in; this will not only cool it, and prevent its giving growth to any great quantity of moſs, but it will alſo prevent the other great miſchief which fruit-trees are liable to in dry grounds, which is, the falling off of the fruit too early.

Moss. A name given to moory or boggy gounds, in many parts of England. Theſe ſorts of land conſiſt of a turfy ſurface, below which is a black, moiſt, ſpongy earth, which being dug up with ſpades, almoſt in the form of bricks, and dried, is what they call peat, and is uſed as fuel in ſeveral parts.

The ſhorteſt method of all for the improvement of moſs, if the ground be deſigned only for graſs, and its ſituation be ſuch as admits of it, is this: firſt drain the moſs, and if there be heath upon it, burn that off, and make the ſurface even. Then make a dam at the loweſt part, and a ſluice, and work the water upon it through the winter. The mud which comes with the land flood will bring a fine ſward upon it in two or three years, and be afterwards a yearly manure; ſo that it will bear annual cutting, and, beſides, be good paſture for cattle, after the ſward is become ſtrong enough to bear them.

Mr. Græme found that the improvement of moſs may be endangered by draining it too much; for his crops were beſt where the ſurface of the water in the ſurrounding ditches was not above three feet lower than the level of the moſs. It will, undoubtedly, be a vaſt advantage to an improved moſs, if the farmer is able to flood it at proper times, by means of a ſluice in the loweſt part of the ſurrounding ditch, as mentioned before. This will greatly promote the growth of plants; but ſhould be uſed with the caution of not letting the water remain too long at a time upon the ground, becauſe, though there will be no danger of its re-converting the ſoil into a bog ſo long as there are channels to carry it off, it will be apt to chill, and thereby hurt the plants.

MOOR. *See* Bog and *Marſhy Land*.

MOTHER *of* THYME. *See Thyme*.

MOTHERWORT, [*Cardiaca*.] This is common in waſte places, and found in flower the greateſt part of the ſummer. The leaves have a bitteriſh taſte, and a ſtrong diſagreeable ſmell: they are ſuppoſed to be uſeful in hyſteric diſorders, and likewiſe to promote urine.

MOULD. Earth, ſoil, loam. The goodneſs of a mould for the purpoſes of agriculture and gardening, &c. may be known, according to Mr. Miller, by the ſight, ſmell, and touch. 1. Thoſe moulds that are of a bright cheſnut or hazely colour, are counted the beſt: of this colour are the beſt loams, and alſo the beſt natural earth; and this will be the better yet, if it cut like butter, and does not ſtick obſtinately, but is ſhort, tolerably light, breaking into ſmall clods, is ſweet, will be tempered without cruſting or chopping in dry weather, or turning to mortar in wet. Next to that the dark grey and ruſſet moulds are accounted the beſt: but the light and dark aſh-coloured the worſt, ſuch as is uſually found on common heathy ground: the clear tawney is by no means to be approved; but that of a yellowiſh red colour is the worſt of all: this is commonly found in wild and

waſte parts of the country, and for the moſt part produces nothing but goſs, furze, and fern, according as their bottoms are more or leſs of a light and ſandy, or of a ſpewey gravel, or clayey nature. 2. All lands that are good and wholeſome, will, after rain, or breaking up by the ſpade, emit a good ſmell. 3. By the touch we may diſcover whether it conſiſts of ſubſtances entirely erenaceous, orclammy; or, as it is expreſſed by Mr. Evelyn, whether it be tender, fatty, deterſive, or ſlippery; or more harſh, gritty, porous, or friable.

MOULDINESS. A term applied to bodies which corrupt in the air, from ſomehidden principle of humidity therein; and whoſe corruption ſhews itſelf by a certain white down, or lanugo, on their ſurface, which, viewed through a microcoſope, appears like a kind of meadow, out of which ariſes herbs and flowers, ſome only in the bud, others full blown, and others decayed, each having its root, ſtalk, and others parts.

MOUSE-EAR. [*Auricula Muris.*] This is a low creeping plant, covered with a kind of blackiſh hairs. It grows wild in dry paſture grounds, and flowers in June and July. The leaves have a rough ſubacrſd taſte: They are recommended as aſtringents, but practice pays no regard to them.

MOUSEL-SCAB. Is a diſtemper that ſometimes attends ſheep and young teggs; and that comes (as ſhepherds ſay) where there is great plenty of furrs and goſs, that by eating of the tops and flowers thereof, they prick their lips and mouſel, whereby theſe ſorts of ſcabs are produced; which are healed, by anointing them with freſh-butter; but ſome take the juice of plantain and freſh greaſe boiled together, wherewith they anoint them.

MOUND. A bank or fence of earth.

MOW. The pile or collection of corn in the ſtraw, placed in a bay of a barn.

MOW-BURNT. Over-heated in the mow for want of being dry.

MOWING. Cutting down with a ſcythe, which inſtrument goes nearer the ground than the reaping hook, and is applied to graſs in general, and to barley and oats chiefly.

MUCK. Dirt, rubbiſh.

MUD, properly ſo called, is the fineſt earth, waſh'd and worn to a ſurprizing fineneſs by the action of water. This is the condition of fine and pure mud: this is ſuch as is drag'd out of the bottoms of rivers, where it has been many years collecting, and where ſand and all other foulneſſes whatſoever are thoroughly waſh'd from it.

Mud, in ſome of its properties, reſembles marle. It is the ſofteſt, fatteſt, and melloweſt of all earthy ſubſtances after that; and like marle it breaks with the leaſt rains, and crumbles away: ſo far they are alike, as alſo in giving great fertility: but marle is a particular ſubſtance, and has a laſting quality of enriching land, whereas mud is only mould in a particular form, and its effect is of no great continuance.

The next to the mud of rivers is that of ponds: but this is leſs pure and fine; it is often clayey, and generally has ſome mixture of ſand.

The laſt kind to be named is, that mud which is thrown up in the cleanſing of ditches. This is the pooreſt and worſt of all: but even the worſer ſorts are not to be rejected or deſpiſed; for they have their particular uſes, which the very fineſt would not anſwer ſo well.

The mud of ditches, eſpecially thoſe by road ſides, is full of grit and ſand blown in with the duſt: it is ſhort enough, but wants mellowneſs.

The firſt thing the farmer is to do in theſe matters, is like what he is to do in reſpect of his marle. He muſt learn to diſtinguiſh theſe three kinds of mud by the names of river mud, pond mud, and ditch mud; and then conſider, from their nature and from experience, what ſoils each of them will ſeverally ſuit.

As marle is moſt uſed on plough'd lands, mud is moſt frequently laid on paſture and meadow grounds. But this need not be eſtabliſhed as an univerſal rule. We have ſeen how marle may be uſed with advantage on paſture grounds; and mud will alſo help many corn lands.

Marle is commonly uſed alone, and mud with other Ingredients; but in ſome inſtances marle may be mix'd alſo; and in ſeveral caſes mud may be beſt uſed alone.

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From the different nature of the mud it is qualified to anſwer different purpoſes. River mud is proper to give fertility, and nothing elſe: for its richneſs is all its character. Pond mud will enrich, and at the ſame time give a body to the ſoil from the clay it uſually contains; and ditch mud, though it will leſs enrich, will ſerve better than any to break a tough land.

When mud is to be laid on a plow'd land, this is uſually the kind.

From the conſideration of their nature, the farmer will be led to a general notion of their uſe, and the lands to which they are ſuited. Thus the river mud is proper for meadows and paſtures of a mellow ſoil, that want nothing but a recruit of that fine mould, which the ſeveral growths have waſted and drawn forth; pond mud is beſt where the ſoil is too light and crumbly; and ditch mud is preferable to both on a clayey ground.

Mud, eſpecially that out of rivers, has this particular quality, that it mixes in a favourable manner with the finer part of dung. This we have obſerved ſeveral times in meadows. After having given them a ſprinkling of mud and dung mix'd together, and a few ſhowers, falling on the ground, the ſtrawy part has been waſhed clean, and nothing but that remaining the mud and the rich part of the dung being wholly gone down into the land: and the next crop has ſufficiently found their effects.

People who ſtudy the growth of plants, talk greatly of the value of virgin earth, that is, earth on which nothing ever grew. River mud is the neareſt this virgin earth in its nature of any thing whatever.

We adviſe the farmer who has dry paſtures, whether they be of a ſtony, gravelly, or ſandy nature, to uſe this manure preferably to all others; but let him obſerve the following directions:

If the land be entirely of a looſe nature, let him uſe the pond mud, mix'd with rich well-rotted dung; and lay it on in a good round quantity.

If the ſoil be mellow, and only require to be recruited and put in heart, after ſeveral growths that have exhauſted it, let him mix pure river mud with the dung of poultry or ſheep, and ſcatter this lightly over the ground. A very little of this anſwers the purpoſe; and it is beſt to uſe a little at a time, and repeat it often.

If the ſoil be clayey, let him take the mud of ditches, and make a mixture of it with chalk and rotten dung; this, being ſpread tolerably thick, will break and mellow the ground, as well as give it warmth and richneſs.

MUGWORT, [*Artimiſia.*] This plant grows plentifully in fields, hedges, and waſte places, throughout England; and flowers in June. In appearance it ſomewhat reſembles the common wormwood: the difference moſt obvious to the eye is in the flowers, thoſe of wormwood hanging downwards, whilſt the flowers of mugwort ſtand erect. The leaves of this plant have a light aromatic ſmell, and an herbaceous bitteriſh taſte. They are principally celebrated as uterine & antihyſteric: infuſion of them is ſometimes drank, either alone or in conjunction with other ſubſtances, in ſuppreſſions of the menſtrual evacuations. This medicine is certainly a very mild one, and conſiderably leſs hot than moſt others to which theſe virtues are attributed: in ſome parts of this kingdom, mugwort is in common uſe as a pot-herb.

MULBERRY, [*Morus.*] The ſpecies are, 1ſt. The common mulberry, which is cultivated for the delicacy of its fruit. It grows naturally in Perſia, from whence it was firſt brought to the ſouthern parts of Europe, but is now become common in every part of Europe where the winters are not ſevere; for in the northern parts of Sweden theſe trees will not live in the open air; and in ſeveral parts of Germany they are planted againſt walls, and treated in the ſame way as the Peach, and other tender fruits, in this country. 2d. Virginia mulberry, branching like the nettle-tree, having very large leaves. This tree grows to the height of thirty or forty feet. It ſends forth many large branches; and the bark of the young ſhoots is of a blackiſh colour. The leaves are larger than the common mulberry, and rougher, though in other reſpects they ſomewhat reſemble them. It produces plenty of katkins, in ſhape like thoſe of the birch-tree; and the female flowers are ſucceeded

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by a dark reddiſh fruit. This is a very ſcarce plant at preſent, notwithſtanding it bears the ſeverity of our climate extremely well. 3d. Mulberry with a white fruit. This tree will grow to a large ſize, and is very proper for walks and avenues, or for clumps or ſtandards, either in fields or parks. The leaves are of a clear light green, and the fruit is of a paler colour than any of the other ſorts, which makes it take the name of the white mulberry. This tree poſſeſſes the peculiar property of breeding no vermin, either when growing or cut down; neither does it harbour any caterpillar, the ſilk-worm excepted. This ſpecies is cultivated for its leaves in France and Italy to feed ſilk-worms; and, when raiſed for that uſe, the tree ſhould not be ſuffered to grow tall. The leaves ſhould be ſhorn off together with the tender twigs, which injures the plant much leſs than pulling them by the hand. This kind ſhould be raiſed from ſeeds procured from the ſouth of France or Italy. 4th. Mulberry with a green fruit, whoſe wood dyes a ſulphur colour. Fuſtick wood. This tree is better known by the title of Fuſtick, which is given to the wood, than by its fruit, which is of no eſtimation. It grows naturally in moſt of the iſlands in the Weſt-Indies, but more plentifully at Campeachy, where it abounds greatly. This wood is one of the commodities exported from Jamaica, where it grows in greater plenty than in any other of the Britiſh iſlands.——This tree, in the countries where it grows naturally, riſes to the height of ſixty feet and upward. The bark is of a light brown colour, with ſome ſhallow furrows. The wood is firm, ſolid, and a bright yellow. It ſends out many branches on every ſide, covered with a white bark, and garniſhed with leaves about four inches long, which are broad at their baſe, and indented at the foot-ſtalk, where they are rounded; but one ſide is broader than the other, ſo that they are oblique to the foot-ſtalk; theſe diminiſh gradually, and end in acute points; they are rough like thoſe of the common Mulberry, of a dark green, and ſtand upon ſhort foot-ſtalks. Toward the end of the young branches come out ſhort katkins of a pale herbaceous colour; and in other parts of the ſame branches the fruit is produced, growing upon ſhort foot-ſtalks. The fruit is as large as a nutmeg, of a roundiſh form, full of protuberances like the common Mulberry, green within and on the outſide, and of a luſcious ſweet taſte when ripe.——This ſpecies is too tender to thrive in this country, unleſs preſerved in a warm ſtove. There are ſeveral of the plants now growing in the Chelſea garden, which were raiſed from ſeeds ſent from Jamaica by William Williams, Eſq; with many other curious ſorts, which are natives of that iſland. The ſeeds of this plant come up freely on a hot-bed; and when the plants are fit to remove, they ſhould be each planted in a ſeparate ſmall pot filled with freſh light earth, and plunged into a hot-bed of tanners' bark, and ſhaded from the ſun till they have taken new root. Let them be treated in the ſame way as other plants from thoſe hot contries, always keeping them in the tan-bed in the ſtove, where they will make good progreſs. Theſe plants retain their leaves great part of the year in the ſtove. 5th. Mulberry with hand-ſhaped leaves and prickly fruit. This ſort grows naturally in China and Japan, where the inhabitants make paper of the bark. They cultivate the trees for that purpoſe on the hills and mountains, much after the ſame manner as Oſiers are cultivated here, cutting down the young ſhoots in autumn for their bark. A few years ago there were ſeveral of theſe trees raiſed in the garden of his Grace the Duke of Northumberland from ſeed; and, when removed into the open air, bore the weather without ſhelter. This plant makes very ſtrong vigorous ſhoots but ſeems not to be of tall growth, for it ſends out many lateral branches from the root upward. The leaves are large, ſome of them are entire, others, are deeply cut into three, and ſome into five lobes, eſpecially while the trees are young, dividing in form of a hand. They are of a dark green, and rough to the touch, but of a pale green, and ſomewhat hairy on their under ſide, falling off on the firſt approach of froſt in autumn, as do thoſe of the common Mulberry. The deſcription which Kæmpfer gives of the fruit is, that they are a little larger than peaſe, ſurrounded with long pur-

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ple hairs, are compoſed of acini or protuberances, and, when ripe, change to a black purple colour, and are full of ſweet juice. 6th. India Mulberry. This kind grows naturally in India, where it becomes a large tree. It hath a ſoft, thick, yelloviſh bark, with a milky juice like the Fig, which is aſtringent. The branches come out on every ſide, and are garniſhed with oblong, oval, leaves, ſtanding upon ſhort foot-ſtalks. Both ſides of theſe leaves are equal, but their edges are unequally ſawed. They are rough, of a dark green on their upper ſide, but pale on their under, ſtanding alternately on the branches. The flowers come out in round heads at the foot-ſtalks of the leaves on each ſide the branches; they are of an herbaceous white colour; the male flowers have four ſtamina; the female flowers are ſucceeded by roundiſh fruit, which are firſt green, afterwards white, and when ripe turn to a dark red colour.—The plants are too tender to live out of a ſtove in this country. The Mulberry is of the claſs and order Monoecia Tetrandria, which containsthoſe plants that have male and female flowers at ſeparate diſtances upon the ſame plant, the male flowers having four ſtamina. It is generally obſerved, that the old Mulberry-trees are not only more fruitful than the young, but their fruit is much larger and better flavoured: ſo that where there are any of theſe old trees, it is the beſt way to propagate from them, and to make choice of thoſe branches which are moſt fruitful. The uſual method of propagating theſe trees, is by laying down their branches, which will take root in one year, and are then ſeparated from the old trees; but as the moſt fruitful branches are often ſo far from the ground as not to be layed, unleſs by raiſing of boxes or baſkets of earth upon ſupports for this purpoſe, ſo the better way is to propagate them by cuttings, which, if rightly choſen and and ſkilfully managed, will generally ſucceed: And in this method there will be no difficulty in having them from trees at a diſtance, and from the moſt fruitful branches. Theſe cuttings ſhould be the ſhoots of the former year, with one joint of the two years wood to their bottom; the cuttings ſhould not be ſhortened, but planted their full length, leaving two or three buds above ground. The beſt ſeaſon for planting them is in March, after the danger of froſts is over. They ſhould be planted in light rich earth, preſſing the ground pretty cloſe about them; and if they are covered with glaſſes, it will forward their putting out roots; but where there is not ſuch conveniency, the ground about them ſhould be covered with moſs to prevent its drying; and where this is carefully done, the cuttings will require but little water. If the cuttings ſucceed well, and make good ſhoots, they may be tranſplanted the following ſpring into the nurſery, where they ſhould be regularly trained to ſtems by fixing down ſtakes, to which the principal ſhoots ſhould be faſtened; and moſt of the lateral branches ſhould be cloſely pruned off, leaving only two or three of the weakeſt to detain the ſap, for the augmentation of the ſtem; for when they are quite diveſted of their ſide-ſhoots, the ſap is mounted to the top, ſo that the heads of the trees grow too faſt for the ſtems, and become too weighty for their ſupport. After four years growing in the nurſery they will be fit to tranſplant where they are to remain; for theſe trees are tranſplanted with greater ſafety while young, than when they are of a large ſize.

If the cuttings are planted in a bed fully expoſed to the ſun, it will be proper to arch the bed over with hoops, that they may be ſhaded with mats in the heat of the day during the ſpring, till they have put out roots; after which, the more they are expoſed to the ſun, the better they will ſucceed, provided the ground is covered with moſs or mulch to prevent its drying; for the ſun will harden the ſhoots, whereby the plants will be in leſs danger of ſuffering by the early froſts in autumn; for when theſe are in a ſhady ſituation, they are apt to grow vigorouſly in ſummer; and, being replete with moiſture, the early froſts in October frequently kill their tops. If the following winter proves ſevere, they are often killed to their roots, and ſometimes are entirely deſtroyed. Mr. Miller recommends the cuttings to be planted on a hot-bed; and he informs

informs us, that he was led to this improvement by obſerving ſome ſticks of Mulberry-trees which were cut for forks, and thruſt into the hot-bed to faſten down the vines of cucumbers; which, although they had been cut from the tree a conſiderable time, yet many of them put out roots and ſhot out branches; ſo that when any perſon is in haſte to propagate theſe trees, if the cuttings are planted on a moderate hot-bed, they will take root much ſooner than in the common ground.

This tree delights to grow in a light earth, ſuch as is in moſt of the old kitchen gardens about London; for in ſome of thoſe gardens there are trees of a very great age, which are very healthy and fruitful, and their fruit is larger and better flavoured than that of younger trees. Dr. Hunter ſays, he has never yet ſeen any of theſe trees which were planted in a very ſtiff ſoil, or on ſhallow ground, either upon clay, chalk, or gravel, which have been healthy or fruitful; their ſtems and branches are generally covered with moſs, ſo that the little fruit which they produce, is ſmall, ill taſted, and late before it ripens.

If theſe trees are planted in a ſituation where they are defended from the ſtrong ſouth & north-weſt winds, it will preſerve their fruit from being blown off; but this ſhelter, whether it be trees or buildings, ſhould be at ſuch a diſtance as not to keep off the ſun; for where the fruit has not the benefit of his rays to diſſipate the morning dews, it will turn mouldy and rot upon the trees.

MULCH. A ſort of ſtrawey dung, ſomewhat moiſt, and not rooted, and is uſeful in gardening, to protect the rotts of new-planted choice trees or ſhrubs from ſevere froſt in winter and from being dried by the fierce ſun or drying winds in ſpring & ſummer, before they are well rooted; for both of which purpoſes, it is ſpread evenly on the ſurface of the ground round the ſtem of the tree, as far as the roots extend, about three or four inches thick, but which may be augmented in winter if the ſeverity of the froſt render it neceſſary.

MULE. The mule has the good qualities of the aſs without its bad ones. It is as patient of fatigue, and as capable of enduring hunger as the aſs; but then it is as tractable as the horſe; and is ſufficiently ſwift of foot for any common ſervice. When properly bred it is alſo a very handſome creature: and it is indeed ſo well fitted for ſo many different ſervices, that nothing can be more worth while than raiſing them in all places where they will thrive.

The mule is often of the ſize of an ordinary horſe, ſome ſixteen or ſeventeen hands high. They are very ſtrong, and very ſure-footed. This is the quality for which they are valued in many parts of Europe, where the roads are mountainous and ſtony; they will go with the greateſt ſafety over theſe, where a horſe would break his neck.

They perform excellently alſo in draught; and will travel many weeks together with ſix or ſeven hundred weight on their backs, without any ſign of uncommon fatigue.

The mule is bred from the copulation of an aſs and a mare. Thoſe for travel and ſhew are bred from very large he-aſſes and Spaniſh mares: theſe are tall and ſtately, their colour uſually inclining to black, and they are very handſome. But a larger and ſtouter kind are bred from the ſame aſſes, and large Flanders mares. Theſe are frequently ſeventeen hands high; and as large ſet as our common coach horſes. They are much ſtronger than horſes of the ſame ſize, and will bear greater hardſhips, and be fed at much leſs expence. At the ſame time they are much leſs ſubject to diſtempers. Theſe are great recommendations of this creature; and may ſhew how much it would be to the advantage of the farmer always to have them in his yard.

They are extreamly fit for the ſaddle, as well as for theſe laborious employments: they are very manageable, and walk and trot very eaſy. If it ſhould ever become a cuſtom to breed them in England, they may be ſuited to the ſervices for which they are deſign'd, by the choice of proper mares, for they take after them. Thoſe for the road ſhould be bred from light made mares; and thoſe for cart, plough, and the like, from the larger bodied and ſtouter kinds.

There is a very ſubſtantial reaſon why we ſhould breed them in England, which

which is, that such as are bred in colder countries are always better and longer lived than those in hot. As to the objection some have raised of their being vicious, it is a complaint only made where there are but few of them, and those ill taken care of; for where they are common, and are treated in the manner as horses, they are as inoffensive.

Beside the mule already mention'd, which is bred between the ass and the mare, and is a light, beautiful, and lively creature; there is another kind propagated in some places, raised between the horse and the she-ass; but this is an inferior kind.

It has been observ'd, that foals take more after the nature of the female than the male parent; and the same thing is seen very plainly in the breed of mules: those between the ass and the mare, partaking of the nature of the mare, being beautiful, lively and swift; and only inheriting the good qualities of the ass, his patience, strength, and perseverance under fatigue: while on the contrary, those bred from a horse and a she-ass, are of the ass kind, dull, heavy, sluggish, ill-made, and small. There is very little temptation to breed these any where, because the others may be had with as little trouble. Let the husbandman therefore who shall think of breeding mules among his stock, take care that he does not fall into the mistake of supposing that 'tis the same thing, so one parent be of the ass kind, which of the two it is: he here sees the difference.

As the mare is to be suited to the service for which the mule is intended, great care is to be taken to have a proper ass. He should have all the marks of a good one, and above all things he must be large. The fine mules we see, in other parts of Europe, are bred from the tallest asses that can be procured; which they purchase at a vast price, and out of their finest mares. The mare is put into a hollow place rail'd in and the ass has the advantage of higher ground in covering.

We see in this circumstance of the mule, the abhorrence of nature to monsters, or animals produced of mix'd breeds. It was believ'd among the antients, that new sorts of savage creatures were every year produced in Africa, from the copulation of different kinds, and the increase of those monsters so produced; but this is an error; and we see in the instance of the mule, that two creatures of a different, tho' like kind, are very difficultly brought to copulate; and that when they are, altho' they produce a creature different from either, as the mule is both from the horse and ass, yet that creature is not able to propagate its kind again.

The pretence that there is any where a sort of mules that produce their own kind one among another, is as false as the new species of monsters in Africa. The horse and ass are difficultly got together, in order to the production of this animal; but when that is done, there is no carrying the power any farther.

The mare is always averse to receive the ass, and in the same manner the she-ass is unwilling to admit the horse to copulation; insomuch that where they breed mules frequently, it is a practice to make the ass colt suck a mare: and the mare foal suck an ass, in order, as is imagin'd, to make them in some degree partake of the nature of either. This has no real effect, but it is named to shew how sensible the breeders of mules are, that those creatures do not go freely and willingly together: and it is certain, that there is not in nature any power of the mules generating its own kind again.

MULLEIN. [*Verbascum.*] This is met with by road sides, in ditches, and amongst rubbish; and flowers in July. It is said to soften tumours, cool inflammations, and ease pains, and is recommended in distempers of the breast, coughs, and spitting of blood. There are many species cultivated in the gardens of the curious.

MURE. The cake of the apples after pressing.

MURRAIN. The murrain is principally caused from a hot dry season of the year, or rather from some general putrefaction of the air, or from the infection of other cattle, from cattle smelling to carrion, and licking of the bones; from foul food, as overflown hay, grass rotted by the long standing of water on it in wet summers; which sort

fort of food is much better to rot on the ground than to be made uſe of. All theſe things beget an inflammation in the blood, and cauſe a ſwelling in the throat, which in little time ſuffocates the cattle.

The ſigns of this diſeaſe are, a hanging down of the head, gum at the eyes as big as your finger, going weakly, ſtaggering, the head ſwelling very big, the breath ſhort, the heart beating, with rattling in the throat; and if you put your hand into his mouth, and find his breath very hot, his tongue ſhining, he hath the diſtemper very ſtrong. If he be taken backward, he will be very ſtiff, and his guts rumble very much.

If any of your cattle are infected, ſpeedily let both ſick and well blood, and drench them. The following receipt we have not had the opportunity to try, but it hath been much recommended:

Take diapente a quarter of an ounce, dialphera, London treacle, mithridate, and rhubarb, of each the quantity of a nut; of ſaffron a ſmall quantity, wormwood, red ſage, of each an handful, and two cloves of garlick: boil all together in two pints of beer till it comes to a pint and a half; give it lukewarm, when he is faſting; keep him very warm, and give him a maſh of ground malt, and let him drink warm water a week, & ſometimes boiled oats. If you can make him ſweat he will do well: if one drink will not do, give him another three days after. Half the proportion will do for a cow.

MUSHROOMS, are, by many perſons, ſuppoſed to be produced from the putrefaction of the dung, earth, &c. in which they are found, but notwithſtanding this notion is pretty generally received amongſt the unthinking part of mankind, yet by the curious naturaliſts they are eſteemed perfect plants, tho' their flowers & ſeeds have not as yet been perfectly diſcovered.

The true Champignon, or Muſhroom, appears at firſt of a roundiſh form like a button; the upper part of which, as alſo the ſtalk, is very white, but being opened, the under part is of a livid fleſh colour; but the fleſhy part, when broken, is very white: when theſe are ſuffered to remain undiſturbed, they will grow to a large ſize, and explicate themſelves almoſt to a flatneſs, and the red part underneath will change to a dark colour.

In order to cultivate them, if you have no beds in your own, or in neighbouring gardens, which produce them, you ſhould look abroad in rich paſtures during the months of Auguſt and September, until you find them (that being the ſeaſon when they are naturally produced;) when you ſhould open the ground about the roots of the Muſhrooms, where you will find the earth, very often, full of ſmall white knobs, which are the offſets, or young Muſhrooms; theſe ſhould be carefully gathered, preſerving them in lumps with the earth about them; but as this ſpawn cannot be found in the paſture, except at the ſeaſon when Muſhrooms are naturally produced, you may probably find ſome in old dunghills, eſpecially where there has been much litter amongſt it, and the wet hath not penetrated it to rot it; as likewiſe by ſearching old hot-beds it may be often found; for this ſpawn has the appearance of a white mould, ſhooting out in long ſtrings, by which it may be eaſily known, wherever it is met with: or this may be procured by mixing ſome long dung from the ſtable, which has not been thrown on a heap to ferment; which being mixed with ſtrong earth, and put under cover to prevent wet getting to it, the more the air is excluded from it, the ſooner the ſpawn will appear; but this muſt not be laid ſo cloſe together as to heat, for that will deſtroy the ſpawn: in about two months after the ſpawn will appear, eſpecially if the heap is cloſely covered with old thatch, or ſuch litter as hath lain long abroad, ſo as not to ferment, then the beds may be prepared to receive the ſpawn: theſe beds ſhould be made of dung, in which there is good ſtore of litter, but this ſhould not be thrown on a heap to ferment, that dung, which hath lain ſpread abroad for a month or longer, is beſt; theſe beds ſhould be made on dry ground, and the dung laid upon the ſurface; the width of theſe beds at bottom ſhould be about two feet and a half, or three feet, the length in proportion to the quantity of Muſhrooms deſired; then lay the dung about a foot thick, covering

covering it about four inches with ſtrong earth. Upon this lay more dung, about ten inches thick; then another layer of earth, ſtill drawing in the ſides of the bed, ſo as to form it like the ridge of a houſe, which may be done by three layers of dung and as many of earth. When the bed is finiſhed, it ſhould be covered with litter or old thatch, to keep out wet, as alſo to prevent its drying; in this ſituation it may remain eight or ten days, by which time the bed will be in a proper temperature of warmth to receive the ſpawn; for there ſhould be only a moderate warmth in it, great heat deſtroying the ſpawn, as will alſo wet; therefore when the ſpawn is found, it ſhould always be kept dry until it is uſed, for the drier it is, the better it will take the bed. Mr. Miller ſays, he had a parcel of this ſpawn, which had laid near the oven of a ſtove upward of four months, and was become ſo dry, that he deſpaired of its ſucceſs; but never had ſeen any which produced ſo ſoon, nor in ſo great quantity as this.

The bed being a proper temperature for the ſpawn, the covering of litter ſhould be taken off, and the ſides of the bed ſmoothed; then a covering of light rich earth, about an inch thick, ſhould be laid all over the bed, but this ſhould not be wet; upon this the ſpawn ſhould be thruſt, laying the lumps two or three inches aſunder; then gently cover this with the ſame light earth, about half an inch thick, and put the covering of litter over the bed, laying it ſo thick as to keep out wet, and prevent the bed from drying: when theſe beds are made in the ſpring or autumn, as the weather is in thoſe ſeaſons temperate, ſo the ſpawn will then take much ſooner, and the Muſhrooms will appear perhaps in a month after making: but thoſe beds which are made in ſummer, when the ſeaſon is hot, or in winter, when the weather is cold, are much longer before they produce.

The great ſkill in managing of theſe beds is, that of keeping them in a proper temperature of moiſture, never ſuffering them to receive too much wet: during the ſummer ſeaſon, the beds may be uncovered to receive gentle ſhowers of rain at proper times; and in long dry ſeaſons the beds ſhould be now and then gently watered, but by no means ſuffer much wet to come to them; during the winter ſeaſon they muſt be kept as dry as poſſible, and ſo cloſely covered as to keep out cold. In froſty or very cold weather, if ſome warm litter ſhaken out of a dung heap is laid on, it will promote the growth of the Muſhrooms; but this muſt not be laid next the bed, but a covering of dry litter between the bed and this warm litter; and as often as the litter is found to decay, it ſhould be renewed with freſh; and as the cold increaſes, the covering ſhould be laid ſo much thicker. If theſe things are obſerved, there may be plenty of Muſhrooms produced all the year; and thoſe produced in beds are much better for table than any of thoſe which are gathered in the fields.

A bed thus managed, if the ſpawn takes kindly, will continue good for ſeveral months, and produce great quantities of Muſhrooms; from theſe beds, when they are deſtroyed, you ſhould take the ſpawn for a freſh ſupply, which may be laid up in a dry place until the proper ſeaſon of uſing it; which ſhould not be ſooner than five or ſix weeks, that the ſpawn may have time to dry before it is put into the bed, otherwiſe it will not ſucceed well.

Sometimes it happens, that beds thus made do not produce any Muſhrooms till they have lain five or ſix months, ſo that theſe beds ſhould not be deſtroyed, though they ſhould not at firſt anſwer expectation; for we have frequently known theſe to have produced great quantities of Muſhrooms afterward, and have continued a long time in perfection.

MUSK, [*Abelmoſchus.*] This plant is a native of the Weſt-Indies propagated by ſeeds ſown on a hot-bed, and may be treated as the Amaranth.

Musk *Hyacinth.* See HYACINTH.

Musk *Melon.* See MELON.

MUST. New wine or wort before it is fermented.

MUSTARD, [*Sinapis.*] The ſpecies are, 1. white muſtard; 2. black muſtard; 3. Field or Durham muſtard. The two firſt flower in June, and the ſeeds ripen in July and Auguſt; the other flowers in May, and the ſeeds ripen in June. To ſave the ſeed for garden uſe, ſow it on an open ſpot of

ground in March or April, either thinly in drills a foot aſunder, or broad-caſt all over the ſurface, and let the plants run up to ſtalk, and they will furniſh ripe ſeeds in Auguſt.

To raiſe the plants for the ſeed for Muſtard, they ſhould be ſowed in the ſpring, any time in March, in ſome open ſituation either in a kitchen-garden, or in the open fields, where large quantities are required for ſale; in either caſe, having digged or ploughed the ground, then ſow the ſeed broad-caſt all over the ſurface, and rake or harrow them in lightly, or ſow it in ſhallow drills a foot aſunder. They will ſoon come up, obſerving, that when the plants have four or more leaves an inch or two broad, thoſe ſown in the broad-caſt way ſhould be hoed and thinned, leaving them ten or twelve inches aſunder, and cut up all weeds, repeating it once or more if neceſſary; after this the plants will ſoon ſpread and cover the ground, and ſhoot faſt up to ſtalks for flowers and ſeed, which will ripen in July or Auguſt, and the third probably in June, when the ſtalks ſhould be cut or pulled up, and threſhed out for uſe.

Heage MUSTARD. *See* HEDGE MUSTARD.

Mithridate MUSTARD, [*Thlaſpi.*] A biennial plant that grows among corn, or the ſides of dry banks in many parts of England, which dies ſoon after it has perfected his ſeeds. There are ſeveral ſpecies, annuals and biennials, cultivated in botanic gardens. They are propagated from ſeeds.

Baſtard MUSTARD. *See* BASTARD.

Baſtard Mithridate MUSTARD. *See* BASTARD.

Treacle MUSTARD. Mithridate muſtard. The ſeeds have an acrid biting taſte like the common muſtard.

MYROBALANS, [*Myrobalani.*] Dried fruits brought from the Eaſt-Indies; their outward part, freed from the ſtone.

Five kinds of myrobalans were formerly directed as officinals; 1. The yellow; 2. The chebule; 3. The Indian or black; 4. The belliric; 5. The emblic.

All the myrobalans have a low degree of purgative virtue. They have alſo an aſtringent quality, diſcoverable by the taſte, from their uſe among the Indians for tanning leather, and from their ſtriking a black colour with chalybeate ſolutions; in conſequence of this, they are ſuppoſed to ſtrengthen the bowels after their operation as a cathartic is over. Nevertheleſs their purgative virtue is ſo inconſiderable, that practitioners have for a long time laid them entirely aſide in that intention; and the college of Edinburgh, as well as that of London, have now rejected them from the catalogue of officinal ſimples.

MYRRH, [*Myrrha.*] Is a concrete gummy-reſinous juice brought from the Eaſt-Indies, in glebes or drops, of various colours and magnitudes. The beſt ſort is of a brown or reddiſh yellow colour, ſomewhat tranſparent; of a lightly pungent, bitter taſte, with an aromatic flavour, though not ſufficient to prevent its proving naufeous to the palate; and a ſtrong not diſagreeable ſmell. The medical effects of this aromatic bitter are, to warm and ſtrengthen the viſcera, and diſſolve thick tenacious juices: it frequently occaſions a mild diaphoreſis, and promotes the fluid ſecretions in general.

Hence it proves ſerviceable, in languid caſes, diſeaſes ariſing from a ſimple inactivity, thoſe female diſorders which proceed from a cold, mucous, ſluggiſh indiſpoſition of the humours, ſuppreſſions of the uterine diſcharges, cachectic diſorders, and where the lungs and thorax are oppreſſed by viſcid phlegm. Myrrh is likewiſe ſuppoſed in a peculiar manner to reſiſt putrefaction in all parts of the body; and in this light ſtands recommended in malignant, putrid, and peſtilential fevers, and in the ſmall-pox, in which laſt it is ſaid to accelerate the eruption.

Rectified ſpirit extracts the fine aromatic flavour and bitterneſs of this drug, and does not elevate any thing of either in evaporation: the gummy ſubſtance left by this menſtruum has a diſagreeable taſte, with ſcarce any thing of the peculiar flavour of the myrrh: this part diſſolves in water, except ſome impurities which remain. In diſtillation with water, a conſiderable quantity of a ponderous eſſential oil ariſes, reſembling in flavour the original drug. Myrrh is the baſis of an officinal tincture, and gives name to a compound tincture, elixir, powder,

der, and troches. It is an ingredient in the aloetic wine or elixir proprietatis, the gum pills, Rufus's pills, ſtomachic pills, mithridate, theriaca, and theriaca Edinenſis.

MYRTLE, [*Myrtus.*] The ſpecies are, 1. The common myrtle, the varieties of which are, the broad-leaved Roman, the broad-leaved Dutch, the orange-leaved Spaniſh, the common upright Italian, Portugal acute-leaved, box-leaved, roſemary-leaved, thyme-leaved, nutmeg, broad-leaved nutmeg, criſtated, or cock's-comb, frequently called bird's-neſt Myrtle.

They are all beautiful ever-green ſhrubs of exceeding fragrance; exotics originally of the ſouthern parts of Europe, and of Aſia and Africa, and conſequently in this country require ſhelter of a green-houſe in winter: all of which, though rather of the ſmall-leaved kind, have their foliage cloſely placed, remain all the year, and are very floriferous in ſummer; and when there is a collection of the different ſorts, they afford an agreeable ſource of variety with each other; they therefore claim univerſal eſteem as principal green-houſe plants, eſpecially as they are all ſo eaſily raiſed from cuttings, and of ſuch eaſy culture, as to be attainable in every garden, where there is any ſort of green-houſe, or garden-frames furniſhed with glaſſes for protecting them in winter from froſt; but ſome of the broad-leaved ſorts are ſo hardy as to ſucceed in the full ground, againſt a ſouth-wall and other warm expoſures all the year, by only allowing them ſhelter of mats occaſionally in ſevere froſty weather: ſo that a few of theſe ſorts may be alſo exhibited in a warm ſituation in the ſhrubbery: obſerving, however, all the ſorts are principally to be conſidered as green-houſe plants, and a due portion of them muſt always remain in pots to move to that department in winter.

There are ſeveral ſpecies of the ſtove temperature, as natives of the Indies; but there are not more than the four following ſorts commonly met with in the Engliſh gardens, all of which are beautiful ever greens, with larger leaves then the Common Myrtles and are moſtly ſtrong aromatics.

1. Ceylon white-berried Myrtle.

2. Pimento, or Jamaica all-ſpice tree. This ſpecies is wholly an admirable fine aromatic, its leaves are remarkably fine ſcented; and its fruit is that valuable ſpice, Jamaica pepper, or all-ſpice, ſo called, becauſe it is ſuppoſed to partake of the odour and taſte of moſt other ſpices. The tree grows in great abundance in the iſland of Jamaica, where its fruit is made a conſiderable branch of trade; is generally gathered a little before it acquires full growth, and dried in the ſun ten or twelve days; it is then packed up ready for exportation to Europe.

3. Dicœcious American Myrtle.

4. Braſilian Inodorus Myrtle.

All theſe five ſpecies of Myrtle are exotics of the ſhrub and tree kind, though in this country, as being confined in pots, the largeſt of them aſſume only the growth of moderate ſhrubs. The firſt ſpecies, Common Myrtle, is conſiderably the moſt noted ſpecies of the genus in this country; where in moſt of our green-houſe collections one or other of the varieties is found in tolerable plenty; but all the varieties of it highly merit notice. The other four ſpecies are rare in England, they however are retained in many curious gardens, in the ſtove collection, more particularly the Pimento, which is a very beautiful odoriferous ever-green, and exhibits a fine variety in the ſtove at all ſeaſons: in ſhort, all the ſpecies, both green-houſe and ſtove kinds, have a pretty effect as ever-greens, and ſome of the ſorts flower very ornamentally, particularly of the Common Myrtle.

The propagation of the Common Myrtle and varieties is effected abundantly by ſlips or cuttings, alſo by layers; but as the former ſtrike freely, it is the moſt eligible method for raiſing any conſiderable quantity, as alſo the handſomeſt plants, which may be ſtruck either in natural earth, or by aid of hot-beds, to bring them more forward.

The young ſhoots, either of the ſame or former year's growth, of from about two or three to five or ſix inches long, either ſlipped or cut off, are the proper parts for planting; and, as above ſaid, may be ſtruck either in natural earth without artificial heat, or by aid of hot-beds; but by the latter you may greatly facilitate the rooting and firſt effort of growth. By either method the work may be performed any time from March or April until Auguſt,

though June or July is the moſt common ſeaſon practiſed, eſpecially when intended to uſe the ſhoots of the ſame year, which are generally in prime order in July, and often ſtrike freely that year without aid of hot-beds; the young ſhoots of the former year will alſo often ſtrike tolerably, eſpecially if planted in ſpring or early in ſummer, or by aid of hot-beds may be made to ſtrike root readily at any time in the ſpring or ſummer ſeaſon. By aid of a hot bed, however, all the ſorts, both of one or two years ſhoots may be greatly facilitated in rooting: a dung hot-bed under common frames and lights will do, though a bark hot-bed of a ſtove, &c. is conſiderably the moſt eligible and effectual, and may be readily uſed any time in ſpring and ſummer for this purpoſe; and by which aſſiſtance vaſt numbers of cuttings may be ſtruck with the utmoſt facility in a ſhort time, with but little trouble; and plants thus ſtruck in ſpring or early in ſummer, may be ſo much forwarded as to form pretty little plants the ſame year, and be fit to pot off ſeparately early in autumn. We will, however, exhibit ſeparate directions for both methods, i. e. ſtriking them in natural earth, and by hot-beds.

Firſt, by ſtriking them in natural earth: we noticed above, that the planting might be performed any time from March till Auguſt; obſerve in reſpect to this, that if you would begin in ſpring, or early in ſummer, you muſt chuſe principally the ſhoots of the former year; and if you do not begin planting till June or July, but particularly the latter month, the young ſhoots of the year will be arrived at a proper growth, and will root freely. Obſerve in chuſing the ſhoots, either of the former or ſame year, to chuſe the ſtraight clean growth, of from about two or three to four or five inches length, and as robuſt as poſſible; which diveſt of the lower leaves, two parts in three of their length, they are then ready for planting; then having ſome large wide garden-pots, or rather flat wide earthen pans, ſix inches deep, with holes at bottom to diſcharge the wet, ſuch as are uſed by the ſetting-gardeners about London, who raiſe prodigious quantities of Myrtle annually for the ſupply of the markets; fill the pots or pans with light rich mould, in which plant the ſlips or cuttings, many in each pot or pan, if required, putting them in within an inch of their tops, and about an inch or two aſunder; give directly ſome water to ſettle the earth cloſely about each plant; then either plunge the pots, &c. in a ſhallow garden-frame, and put on the glaſſes, or under oiled paper-frames, or cover each pot or pan cloſe with a low hand-glaſs, which is rather the moſt eligible for facilitating their rooting; in either method, however, obſerve to plunge the pots in the earth, and keep them cloſe covered with the glaſſes, &c. where practicable, to exclude the air, for this will promote the quick emiſſion of roots the ſame ſeaſon; remembering to afford them occaſional ſhade from the mid-day ſun, but if under oiled paper none is wanted; and give plenty of water three or four times a week at leaſt, or oftener in very hot weather; thus they will be rooted in a month or ſix weeks, which will appear by their exhibiting ſigns of growth at top; at which period inure them gradually to the full air, ſtill ſupplying them duly with water during the hot weather, whereby they will ſhoot in height; and thoſe planted early will often branch out laterally a little the ſame year, ſo as to commence pretty little plants by autumn: let them remain in the full air until October, then remove them in their pots or pans into the green-houſe, or under a good garden-frame for the winter, and in ſpring the forwardeſt in growth may be potted off ſeparately in ſmall pots; but if rather ſmall and weak, or but indifferently rooted, let them have another ſummer's growth, and pot them out ſeparately in September or ſpring following, as it ſhall ſeem proper; managing them as other green-houſe ſhrubs of ſimilar temperature, and ſhift them into larger pots annually, or according as they ſhall require.

For want of frames and glaſſes of any ſort to ſtrike the cuttings under, oiled paper-frames may be uſed, which may be obtained at an eaſy expence, and are excellent for ſtriking many ſorts of cuttings; they admit the rays of light and heat ſufficiently, & at the ſame time afford ſuch agreeable ſhade, that no other is required, and which is of ſuch a nature as greatly to promote the rooting of cuttings.

But

But Myrtle cuttings will ſometimes ſtrike in the open ground without any coverings; and if planted betimes in ſummer, either in pots or pans, as above mentioned, and plunged in a ſhady border, or the ſlips planted in the earth of ſuch a border of rich earth; and in either method plentifully ſupplied with moiſture, they will often root tolerably the ſame year, and ſhoot a little at top; though rarely make ſo good plants by autumn as thoſe forwarded in the above manner, nor near ſo ſtrong as thoſe ſtruck in the following method by artificial heat.

By Aid of Hot-beds, either that of dung, under frames and glaſſes, oiled paper-frames, or in the bark-bed in the ſtove, &c. but rather the latter; but by either method the rooting and firſt growth of the ſlips may be greatly forwarded; a bark-bed in particular in the ſtove, &c. is the moſt eligible, and effectual for this purpoſe, and in which vaſt numbers of ſlips or cuttings may be readily ſtruck, at any time from March until Auguſt, both in ſhoots of the former year, and of the ſame year's growth, from three or four to five or ſix inches long: and that thoſe ſtruck in ſpring and early in ſummer, will form fine young plants for potting off early in the ſucceeding autumn. However, in default of bark hot-beds, one of dung under glaſſes may ſuffice; but if furniſhed with both, give preference conſiderably to a bark-bed.

Therefore being furniſhed with pots, or rather wide pans, as before directed, filled with fine rich earth, take off a quantity of ſlips or cuttings, the moſt robuſt ſhoots; which if in ſpring or early in ſummer, thoſe of the former year muſt be choſen; and at a more advanced ſeaſon, thoſe of the ſame year will be arrived to a proper growth for this purpoſe: obſerving for either ſort to ſtrip off the under leaves, as before adviſed; then plant them in the pots or pans, as already exhibited, give a general watering, and directly plunge them in the hot-bed, affording occaſional ſlight ſhade from the fierce ſun, and water them frequently; they will thus root in a fortnight or three weeks, and advance in growth; obſerving to inure them gradually to the open air, if the temperature of the weather permits, in a ſheltered ſituation; or in a frame, if cold weather; and from thence by degrees expoſe them fully for the remainder of the ſummer, in a ſheltered place, and ſupply them duly with water in dry weather. They will be fine plants by September; and, as before obſerved, thoſe raiſed early will be then fit to pot off ſingly into ſmall pots; and the latter plantings will be fit for potting in ſpring, or autumn following; removing them all to ſhelter towards the middle or latter end of October.

In ſtriking the cuttings by the above method, if, as ſoon as they are planted and plunged in the hot-bed, each pot or pan is covered cloſe with a low hand-glaſs, it will ſtill contribute to facilitate their rooting the more effectually; for being cloſe covered, it will force out roots ſooner, and prevent the cuttings from running up weak; obſerving, however, when they begin to advance at top, to remove the glaſſes.

By the above methods of artificial heat, in ſtriking Myrtle cuttings, you may make two or three plantings each ſeaſon, where large quantities are required; the firſt planting in March or April, of the beſt laſt year's ſhoots; the ſecond early in June, of the ſucceeding beſt ſhoots; or about Mid-ſummer, or ſoon after, may plant ſhoots of the year; and in a month or ſix weeks after, the next beſt ſhoots alſo of the ſame year will be come forward, and of which may be made another plantation; plunging each planting in the bark-bed, &c. as above; thus may you have three young crops advancing in different ſtages of growth each year in ſtore-pans; ſome ready for potting off ſingly every autumn and ſpring, whereby a large ſtock may be always kept up, as is neceſſary for thoſe who raiſe them for ſale, eſpecially about London, for Covent-garden market, where amazing quantities are brought for ſale at all times of the year, which ſell from ſix-pence to half-a-crown per pot, according to the ſize and goodneſs of the plants.

Thoſe who propagate large quantities of theſe plants annually, ſhould always keep ſome ſtrong buſhy plants for furniſhing ſlips or cuttings for this purpoſe.

Propagation by Layers.——Such plants as are furniſhed with young bottom branches or ſhoots ſituated low

low enough for laying, may be layed in ſpring, in the uſual way; every ſhoot will readily emit roots, and be fit to tranſplant into ſeparate pots in autumn.

By Seed.—Theſe may be ſowed in ſpring, in pots of light mould, plunged in a moderate hot-bed; they will ſoon come up, and, when two or three inches high, pot them off ſeparately in ſmall pots; manage them as the others, and probably as they advance in growth may diſcover ſome new varieties.

With reſpect to the general culture of all theſe ſorts of common Myrtle, they ſucceed in the open air from May until the end of October, when remove them in their pots to the green-houſe, or into a deep garden-frame under glaſſes, allowing air freely in all mild weather, by opening the glaſſes wide; giving water once or twice a week or ten days in winter, and every other day at leaſt in ſummer; and according as they advance in growth, ſhift them into larger pots, as may be neceſſary every year to one or other of them.

In training theſe ſhrubs, obſerve, as they naturally branch out all around, ſo to be feathered quite to the bottom, in a beautiful manner, that if you deſign any ſhall form ſtandards, with buſhy heads for variety, trim off the lower ſhoots gradually ſo as to form a ſtraight clean ſtem, two or three feet high or more, then ſuffer them to branch out every way at top to form a head: but thoſe which are intended to be low and branchy quite to the bottom, ſhould have the lateral ſhoots encouraged nearly in their own way, whereby they will be feathered all the way from bottom to top, and aſſume a more pictureſque appearance.

Let them afterwards for the moſt part aſſume their own natural growth, except when their heads become thin, ſtraggling, and irregular; then ſhorten with a knife ſuch ſhoots as ſhall appear proper, either in order to force out laterals to make good deficiencies, or to form regularity.

Never practiſe clipping theſe ſhrubs with garden-ſhears into globes, pyramids, &c. as ſometimes done; but let all neceſſary trimming be performed be the knife, and that only in caſes of irregularity as above, for they always appear the moſt agreeable when they grow nearly according to nature.

If their heads at any time become very irregular, or thin and ſtubby, by heading down all the branches pretty ſhort in ſpring, and ſhifting them into larger pots of freſh mould, with the ball of earth about their roots, affording plenty of water all ſummer, they will all branch out again numerouſly, and form handſome full heads by the ſucceeding autumn.

Sometimes when Myrtles are become very weak ſtraggling ſhooters, with naked unſightly heads, if headed down, as above, in April or May, turned out of the pots, and plunged in a warm border of rich ſoil, giving plenty of water, they, by ſending their fibres into the freſh earth, often break out with freſh vigour, and become fine full-headed plants by the end of ſummer, when they may be taken up with balls and potted in freſh earth.

As the ſorts in general encreaſe in ſize, ſhift them into larger pots.

The four kinds of Myrtle for the ſtove, are commonly propagated by ſeeds; though, when any are pretty branchy, it may alſo be tried by layers and cuttings.

By Seed.—This is procured from abroad by the dealers, preſerved in ſand, &c. and arrives in ſpring, which ſow as ſoon after it arrives as poſſible, in pots of freſh rich mould, and plunge them in a bark-bed, they will come up the ſame ſeaſon; and, when of two or three inches height, plant out in ſeparate ſmall pots, plunge them alſo in the bark-bed, ſupply them with water, and manage them as other woody plants of ſimilar temperament.

By Layers.—The firſt ſort in particular often branch out low: lay ſome of the young ſhoots in ſpring, by ſlit-laying or wireing, &c. plunging the pots in which they are layed in the tan; they will probably be rooted in one year, though it is frequently two before they ſtrike good root, when pot them off ſeparately.

By Cuttings.—In May or June, cut off ſome ſhort young ſhoots from ſuch of the plants as afford them, plant them in pots of freſh compoſt, plunge them in the bark-bed, and cover them cloſe with a low hand-glaſs, giving due refreſhments of water; they will ſoon take good root, the ſame year, and be fit to plant in ſeparate ſmall pots.

In

In the general management of theſe ſorts, keep them always in the ſtove, except about a month in the heat of ſummer, when they may be truſted abroad. Let them ſhoot nearly in their own way, keeping them, however, to upright ſtems, and ſuffer their hands to branch out according to nature, except juſt reducing very irregular ſhoots: give frequent waterings in common with other woody plants of the ſtove department, and ſhift them occaſionally into larger pots.

Dutch MYRTLE, [*Myrica.*] Candleberry Myrtle. This plant grows in the bogs in many parts of England. *See* CANDLEBERRY TREE.

MUM. A kind of liquor much uſed in Germany; thus made. Take ſixty-three gallons of water that hath been boiled to the conſumption of a third part, brew it according to art with ſeven buſhels of wheat malt, one buſhel of oat meal, and one buſhel of ground beans; when it is tunned, let not the hogſhead be too full at firſt; and when it begins to work, put into it, of the inner rind of fir three pounds, tops of fir and birch one pound, cardus benedictus three handfuls, flowers of roſa ſolis a handful or two, burnet, betony, marjoram, avens, penny-royal, wild-thyme, of each a handful and a half, of elder-flowers two handfuls or more, ſeeds of cardamom bruiſed three ounces, barberries bruiſed one ounce: put the herbs and ſeeds into the veſſel when the liquor hath wrought a while; and after they are added, let the liquor work over the veſſel as little as may be; fill it up at laſt, and when it is ſtopped, put into the hogſhead ten new-laid eggs, unbroken or crack'd, ſtop it up cloſe, and drink it at two years end.

But our Engliſh brewers uſe cardamom, ginger, and ſaſſafras, which ſerves inſtead of the inner rind of fir, alſo walnut rinds, madder, red ſanders, and enula campana; and ſome make it of ſtrong-beer, and ſpruce-beer: and where it is deſigned moſtly for its phyſical virtues, ſome add water-creſſes, brooklime, and wild-parſly, with ſix handfuls of horſe-radiſh raſped to every hogſhead, according to what their inclinations and fancy moſt lead them.

N.

NAIL. A kind of horny excreſcence, upon the ends of the fingers or toes; alſo a well-known ſpike of metal with a ſharp point, and a flat head, uſed to faſten things together.

NAIL. In meaſure, the ſixteenth part of a yard.

NARD, [*Nardus.*] There are two ſorts of this plant, the Celtic and the Indian: the Celtic is a root conſiſting of a number of fibres, with the lower part of the ſtalks adhering; theſe laſt are covered with thin yellowiſh ſcales, the remains of the withered leaves. The Indian nard or ſpikenard, is brought from the Eaſt-Indies.

This is a congeries of ſmall fibres iſſuing from one head, and matted cloſe together, ſo as to form a bunch about the ſize of the finger, with ſome ſmall ſtrings at the oppoſite end of the head. The matted fibres (which are the part choſen for medicinal purpoſes) are ſuppoſed by ſome to be the head or ſpike of the plant, by others the root: they ſeem rather to be the remains of the withered ſtalks, or the ribs of the leaves; ſometimes entire leaves and pieces of ſtalks are found among them; we likewiſe now and then meet with a number of theſe bunches iſſuing from one root.

Both the nards have a warm, pungent, bitteriſh taſte; and a ſtrong, not evry agreeable ſmell. They are ſtomachic and carminative; and ſaid to be alexipharmac, diuretic, and emmenagogue: their only uſe at preſent is as ingredients in the mithridate and theriaca.

NASTURTIUM, [*Lepidium.*] Dittander.

NASTURTII *Aquatici.* Watercreſſes. This plant grows wild in rivulets, and the clearer ſtanding waters; its leaves remain green all the year, but are in greateſt perfection in the ſpring. They have a quick pungent ſmell (when rubbed betwixt the fingers) and an acrid taſte. As to their virtues, they are among the milder aperient antiſcorbutics. Hoffman has a mighty opinion of this plant, and recommends it as of ſingular efficacy for accelerating the circulation, ſtrengthening the viſcera, opening obſtructions of the glands, promoting the fluid ſecretions, and purifying the blood and humours; for theſe purpoſes, the expreſſed juice, which contains the peculiar taſte and pungency of the herb, may be taken in doſes of an ounce or two, and continued for a conſiderable time. The juice is an ingredient in the *ſucci ſcorbutici* of the ſhops.

NASTURTII *Hortenſis.* Garden-creſſes. The leaves of garden creſſes make an uſeful ſallad in ſcorbutic habits: in taſte and medical virtues, they are ſimilar to the foregoing, but much weaker. The ſeeds alſo are conſiderably more pungent than the leaves.

NAVE, *of a Wheel*, is that ſhort thick piece in the center of the wheel, which receives the end of the axletree, and in which the ends of the ſpokes are fixed: it is bound at each end with hoops of iron, called the nave-bands. It has likewiſe, in each end of the hole, through which the end of the axletree goes, a ring of iron, called the wiſher, which ſaves the hole of the nave from wearing too big.

NAVEL-GALL. The Navel-gall is ſeated on the top of the ſpine, oppoſite to the navel, from whence it has its name, and is generally cauſed by a bad ſaddle pinching a horſe behind, which, being neglected, turns to a foul fungous excreſcence; and ſometimes, after long continuance, to a ſinuous

ſinuous and fiſtulous ulcer, ſometimes it looks like a harden'd brown jelly, and ſometimes black and mortifyed. While there is moiſture and ſenſibility in the part, an ointment may be applied of quickſilver and turpentine, *viz.* an ounce of quickſilver to every two ounces of the turpentine, rubbed in a mortar till they be well incorporated, and then ſpread upon hurds or flax: on each ſide of the ſpine, over the ſwelling, may be laid ſmooth dry pledgits of hurds, or bolſters of flaxen cloth, which may be girt round with a ſurſingle. But if the ſore be dead and lifeleſs, a good ſharp razor or knife may be made uſe of to cut it to the quick, and then let it be dreſs'd according to the directions laid down in the cure of wounds, *&c.*

NAVELWORT, [*Cotyledon.*] This plant grows upon old walls, buildings, and rocky places, in many parts of England; it is a biennial plant. There are ſeveral other ſpecies brought from different parts of the world, and cultivated in the gardens, ſome of which require the aſſiſtance of a ſtove.

Shrubby African NAVELWORT, [*Craſſula.*] There are ſeveral ſpecies of this plant, which may be managed like the Sicoides.

Venus's NAVELWORT, [*Cynogloſſum.*] This is an annual plant, with long narrow greyiſh leaves, and white flowers, which grow in looſe panicles. It is propagated by ſeeds ſown in autumn.

Water NAVELWORT, [*Hydrocotyle.*] This plant grows plentifully in moiſt places in moſt parts of England.

NAVEW, [*Rapa.*] This is a ſort of turnep, ſown in ſome of our gardens for culinary uſe: the roots are warmer than the common turnep. The ſeeds have a bitteriſh taſte, accompanied with a faint aromatic flavour: abundance of virtues have been aſcribed to them, as attenuating, detergent, alexipharmac, and others; at preſent, they are of no farther uſe in medicine, than as an ingredient in the theriaca.

NEAT. Cattle of the cow kind.

NEAT-HERD. A cattle-keeper.

NECTARINE. Properly ſo called of nectar the poetical drink of the Gods. This fruit differs from peaches in nothing more than having a ſmooth rind, and the fleſh being firmer; it ſhould have come under the article peaches, but that the writers in gardening have diſtinguiſhed this fruit by the name of nectarine, and we ſhall follow their example, leſt by endeavouring to rectify their miſtakes, we ſhould not be underſtood to the reader. Mr. Miller mentions the following varieties of this fruit:

1. Fairchild's early nectarine. This is one of the earlieſt ripe Nectarines we have; it is a ſmall round fruit, about the ſize of the Nutmeg Peach, of a beautiful red colour, and well flavoured; it ripens the end of July, or the beginning of Auguſt.

2. Elruge Nectarine. The tree has ſawed leaves; the flowers are ſmall; it is a middle-ſized fruit, of a dark red or purple colour next the ſun, but of a pale yellow or greeniſh colour towards the wall; it parts from the ſtone, and has a ſoft melting juice; this ripens in the middle of Auguſt.

3. Newington Nectarine. The tree has ſawed leaves; the flowers are large and open; it is a fair large fruit (when planted on a good ſoil,) of a beautiful red colour next the ſun, but of a bright yellow towards the wall; it has an excellent rich juice; the pulp adheres cloſely to the ſtone, where it is of a deep red colour: this ripens the latter end of Auguſt, and is the beſt flavoured of all the ſorts.

4. Scarlet Nectarine is ſomewhat leſs than the laſt, of a fine red or ſcarlet colour next the ſun, but loſes itſelf in paler red towards the wall: this ripens in the end of Auguſt.

5. Brugnon or Italian Nectarine has ſmooth leaves; the flowers are ſmall; it is a fair large fruit, of a deep red colour next the ſun, but of a ſoft yellow towards the wall; the pulp is firm, of a rich flavour, and cloſely adheres to the ſtone, where it is very red: this ripens in the end of Auguſt.

6. Roman Red Nectarine has ſmooth leaves and large flowers; it is a large fair fruit, of a deep red or purple colour towards the ſun, but has a yelloviſh caſt next the wall; the fleſh is firm, of an excellent flavour, cloſely adhering to the ſtone, where it is very red: this ripens in the end of Auguſt.

7. Murry Nectarine is a middle-ſized fruit, of a dirty red colour on the ſide next the ſun, but of a yelloviſh green towards

towards the wall: the pulp is tolerably well flavoured; this ripens the beginning of September.

8. Golden Nectarine is a fair handsome fruit, of a ſoft red colour next the ſun, but of a bright yellow next the wall; the pulp is very yellow, of a rich flavour, and cloſely adheres to the ſtone, where it is of a faint red colour: this ripens the middle of September.

9. Temple's Nectarine is a middle-ſized fruit, of a ſoft red colour next the ſun, but of a yellowiſh green towards the wall; the pulp is melting, of a white colour towards the ſtone, from which it parts, and has a fine poignant flavour: this ripens the end of September.

10. Peterborough, or late green Nectarine, is a middle-ſized fruit, of a pale green colour on the outſide next the ſun, but of a whitiſh green towards the wall; the fleſh is firm, and, in good ſeaſons, well flavoured: this ripens the middle of October.

There are ſome perſons who pretend to have more ſorts than are here ſet down, but we doubt whether they are different from thoſe here mentioned, there being ſo near a reſemblance between the fruits of this kind, that it requires a very cloſe attention to diſtinguiſh them well, eſpecialſy if the trees grow in different ſoils and aſpects, which many times alters the ſame fruit ſo much, as hardly to be diſtinguiſhed by perſons who are very converſant with them; therefore, in order to be thoroughly acquainted with their differences, it is neceſſary to conſider the ſhape and ſize of their leaves, the ſize of their flowers, their manner of ſhooting, &c. which is many times very helpful in knowing of theſe fruits.

The culture of this fruit differing in nothing from that of the Peach, we refer the reader to that article, for an ample account of their planting, pruning, &c.

NECTARIUM. From nectar, the fabled drink of the gods; defined by Linnæus to be a part of the *corolla*, or appendage to the petals, appropriated for containing the honey, a ſpecies of vegetable ſalt under a fluid form, that oozes from the plant, and is the principal food of bees and other inſects.

Notwithſtanding this definition, which ſeems to conſider the nectarium as neceſſary a part of the *corolla* as the petals, it is certain that all flowers are not provided with this appendage; neither indeed is it eſſential to fructification.

There is, beſides, a manifeſt impropriety in terming the *nectarium* a part of the *corolla*. Linnæus might, with equal propriety, have termed it a part or appendage of the ſtamina, calix, or pointal, as the appearance in queſtion is confined to no particular part of the flower, but is as various in point of ſituation, as of form. The truth is, the term *nectarium* is exceedingly vague; and, if any determinate meaning can be affixed to it, is expreſſive of all the ſingularities which are obſerved in the different parts of flowers.

The tube or lower part of flowers with one petal, Linnæus conſiders as a true *nectarium*, becauſe it is generally found to contain the ſweet liquor formerly mentioned. This liquor Pontedera compares to that called amnios in pregnant animals, which enters the fertile or impregnated ſeeds: but that this is not at leaſt its ſole uſe, is evident from this circumſtance, that the honey or liquor in queſtion is to be found in flowers where there either are no ſeeds, or thoſe, from the want of male organs, cannot be impregnated. Thus the male flowers of nettle and willow; the female flowers of ſea ſide laurel, and black bryony; the male and female flowers of *clutia*, *higgelaria*, and butcher's broom, all abound with the honey or nectar alluded to.

Dr. Vaillant was of opinion that the *nectarium* was an eſſential part of the *corolla*; for which reaſon he diſtinguiſhed the ſingular appearances in fennel-flower and columbine, by the name of petals: the coloured leaves, which are now termed the petals, he denominates the flower cup.

That the *nectarium*, however, is frequently diſtinct from the petals, is evident, both from the well-known examples juſt mentioned, as likewiſe from the flowers of monks-hood, hellebore, *iſopyrum*, fennel-flower of Crete, barrenwort, graſs of Parnaſſus, chocolate-nut, *cherleria*, and *ſauvageſia*.

Theſe general obſervations being premiſed, we proceed to take a nearer and more particular view of the prin-

cip

cipal diverſities, both in form and ſituation, of this ſtriking appendage to the flower.

1. In many flowers, the *nectarium* is ſhaped like a ſpur or horn; and that either in flowers of one petal, as valerian, water-milfoil, *(utricularia)* butter-wort, and calves-ſnout; or in ſuch as have more than one, as lark-ſpur, violet, fumatory, balſam, and orchis.

2. In the following plants, the *nectarium* is properly a part of the *corolla*, as lying within the ſubſtance of the petals: ranunculus, lilly, iris, crown-imperial, water-leaf, mouſetail, ananas or pine-apple, dog's-tooth violet, piperidge buſh, *wallisneria*, *hermannia*, *uvularia*, and *ſwertia*.

3. The *nectarium* is frequently placed in a ſeries or row within the petals, though entirely unconnected with their ſubſtance. In this ſituation it often reſembles a cup, as in narciſſus. A *nectarium* of this kind is ſaid by Linnæus to crown the *corolla*. The following are examples: daffodil, ſea daffodil, campion, viſcous campion, ſwallow-wort, *ſtapelia*, *cynanchum*, *nepenthes*, *cherleria*, balſam-tree, African ſpiræa, witch hazel, *olax*, and paſſion-flower.

4. In Indian creſs, buckler muſtard, Barbadoes cherry, and *monotropa*, the *nectarium* is ſituated upon, or makes part of the calix.

5. The *nectarium* in baſtard flower-fence is ſeated upon the *antheræ* or tops of the ſtamina; whence the name *adenanthera*, orglandular anthera, which has been given to this genus of plants. In the following liſt it is placed upon the filaments: bean caper, bay, fraxinella, marvel of Peru, bell-flower, lead-wort, *roella*, and *commelina*.

6. In hyacinth, flowering ruſh, ſtock July-flower, and rocket, the *nectarium* is placed upon the ſeed-bud.

7. In honey-flower, orpine, buck-wheat, *collinſonia*, *lathræa*, navel-wort, mercury, *clutia*, *kiggelaria*, ſea-ſide laurel, and African ſpiræa, it is attached to the common receptacle.

Laſtly, in ginger, nettle dyer's weed, heart-ſeed, turmerick, *grewia*, baſtard orpine, vanelloe, ſkrew-tree, and willow, the *nectarium* is of a very ſingular conſtruction, and cannot properly fall under any of the foregoing heads.

In diſcriminating the genera, *nectarium* often furniſhes an eſſential character.

Plants which have the *nectarium* diſtinct from the petals, that is, not lodged within their ſubſtance, are affirmed by Linnæus to be generally poiſonous. The following are adduced as examples: monk's hood, helleboré, columbine, fennel-flowers, graſs of Parnaſſus, barren-wort, oleander, marvel of Peru, bean caper, ſucculent ſwallow-wort, fraxinella, and honey-flower.

The term *nectarium*, by which this part of the flower has been diſtinguiſhed, is the invention of Linnæus, who pretends even to have firſt recognized the part in queſtion. It is certain, however, that Tournefort, in 1694, obſerved it in the paſſion-flower, ſwallow-wort, and ſome other plants; and that Vaillant, in 1718, regarded it as a part depending upon the petals, which did not merit any particular appellation. *Needs. See Fig 21.*

NEEZEWORT. Sneezewort.

NENUPHAR. Water lily.

NEP. Catmint. This plant is commonly cultivated in our gardens, and is ſometimes alſo found growing wild in hedges and on dry banks. It is a moderately aromatic plant, of a ſtrong ſmell, not ill reſembling a mixture of mint and pennyroyal; of the virtues of which it likewiſe participates.

NEPHRITIC WOOD, [*Lignum nephriticum.*] An American wood, brought to us in large compact, penderous pieces, without knots, of a whitiſh or pale yellow colour on the outſide, and dark-coloured or reddiſh within: the bark is uſually rejected. This wood imparts to water or rectified ſpirit a deep tincture, appearing, when placed betwixt the eye and the light, of a golden colour, in other ſituations blue: pieces of another wood are ſometimes mixed with it, which give only a yellow colour to water. The nephritic wood has ſcarce any ſmell, and very little taſte. It ſtands recommended in difficulty of urine, nephritic complaints, and all diſorders of the kidneys and urinary paſſages; and is ſaid to have this peculiar advantage, that it does not, like the warmer diuretics, heat or offend the parts. Practitioners however have not found

Wood le Worms. See Woodlice.

theſe virtues warranted by experience.

NETTLE, [*Urtica.*] This is a very common plant well known. There are ſeveral ſpecies brought from different countries cultivated in the gardens; they are eaſily propagated by ſeeds or parting the roots.

Dead NETTLE. *See* ARCHANGEL.

Hedge NETTLE. *See* HEDGE NETTLE.

NETTLE *Tree*, [*Celtis.*] The lote tree.

NEWING. Yeaſt or barm.

NICKING. The operation of nicking a horſe, in the manner it is commonly performed by our grooms and farriers, is one of the moſt cruel and abſurd (not to ſay in many caſes dangerous) that ever was invented or practiſed; though, in itſelf, it is neither ſevere or dangerous, and, if properly done, the horſe in three or four days will be fit again for his accuſtomed labour. A ſafe, eaſy, and rational method of nicking cannot then fail of proving univerſally uſeful and acceptable, to all who are lovers of this ſo noble and ſerviceable an animal.

In order to underſtand the rationale of nicking, it may be neceſſary to premiſe, that there are, in every limb, both in the *human* and *brute ſpecies*, two different ſets of muſcles, called, the flexors & extenſors, whoſe actions are diametrically oppoſite to each other, as the flexors, in their actions, will always ſerve to bend the limb, and the extenſors to ſtraiten or extend it.——Of theſe, the flexors are by much the ſtrongeſt, and will always keep the limb in a half-bent ſtate, unleſs, by any effort of the will, the weaker extenſors ſhould be brought into action, and overcome the natural contraction of the bending muſcles.——The arm of a man, when aſleep, or in a ſtate of reſt, is always half bent, and the fingers half cloſed, but he can at any time, at pleaſure, extend it, and bring it ſtrait; but this ſtate of extenſion may be called, a ſtate of violence; as it cannot, for any length of time, be continued without fatigue and pain, owing to the ſuperior ſtrength, and actions, of the flexor muſcles.

Let the ſame method of reaſoning be applied to the effect of the operation of nicking on the tail of the horſe; and it will readily appear, why it ſhould raiſe or cock the tail; and, at the ſame time, will point out to us what are the beſt, the eaſieſt, and the ſafeſt methods of performing the operation.

The tail of a horſe is naturally drawn downwards by the actions of the flexor muſcles, and the horſe has it in his power to raiſe or elevate his tail when he voids his excrements or the like; yet this may be conſidered as a ſtate of violence, and is but of ſhort duration.——But weaken or deſtroy the action of the muſcles, which draw it downwards, and the extending, or elevating muſcles, having nothing to counteract or reſiſt them, will exert their own particular action, and draw and pull up the tail.

In the methods at preſent uſed in nicking, we may ſee an inſtance of the barbarity, and ſavage cruelty of the farriers and grooms; for, as they never trouble themſelves to enquire into the rationale of the operation, they in general act as if they believed that the deeper they cut, and the more they puniſhed the horſe by pulling and the like, the more likely will he be to carry a good tail; hence they often cut into the very joint itſelf, and put the horſe to ſuch torture, that fevers, and mortifications, will come on; which often end in death: whereas, when the operation is properly performed, it is not attended with any hazard, and but very little pain; and any gentleman may perform it upon his own horſe, without riſk or danger; as all that is required is to deſtroy the action of the muſcles which draw down the tail; whence neceſſarily the extenders, having no power to counteract them, will elevate and lift it up.

When the tail is raiſed, the two flexor muſcles may be ſeen and felt, near or upon the edges of the under part of the tail, from the baſe to its extremity: an inciſion is to be made with a lancet or pen-knife, thro' the ſkin, at the diſtance of about an inch or two from the baſe of the tail; and, the muſcle will appear like a red cord, about the thickneſs of the little finger, which is likewiſe to be cut through.——Make a ſecond inciſion, in the ſame manner, at the diſtance of about two inches from the firſt, and when the muſcle is cut through, the lower extremity of the divided muſcle, will drop, ſo as to hang near half an inch

inch out of the first incision.——Make a third, and, if necessary, a fourth incision, in the same manner, on each side the tail: but it is not necessary that the skin, in the middle of the tail be divided, or, that the wounds should communicate from side to side with each other: then with a pair of small pincers, lay hold of the ends of the muscle, as they hang out of the wound, and draw them as far out as may be, then with a knife, or pair of scissars, cut off as much of them, as you can come at.——If an artery should be divided, and the wound bleed much, which will seldom or never happen, if the incisions do not extend too far towards the middle of the tail, a little lint or tow, dipped in flour and bound lightly on, will be sufficient to stop it; but, if there should not be a loss of blood, there will be no occasion for any dressing, or application of any kind, as the wounds will, in a very few days, heal of themselves.——It is the general, and indeed universally received practice, to extend the horse's tail with weights and pullies, for many days after the operation, but what service this can be of, is hard to guess; 'tis true indeed, it is a severe punishment to the poor animal, and may carry an appearance of stretching, and keeping open the wounds, but that it is of no real advantage, is manifest from experience, as instances can be produced of horses, which have never been pulleyed, that carry as good a tail, as any of those who have gone through the whole severity of their racks and pullies: besides, as all that can with any degree of reason be attributed to the pullies is, only to keep the divided extremities of the muscle from coming together to heal and unite again, it will appear obvious to any one that will give himself the liberty to think, that this can never be the case, even when no pulley is used, for when the muscle of the tail is divided, the lower part of it shrinks and contracts it to a full half inch from the incision, at the same time near half an inch being cut off from the upper part, there will be a distance of near or quite an inch, between the extremities of the divided muscle; a space far greater than is necessary to prevent a union again.

In the method above related of performing the operation, it is recommended to make the first incision, at the distance of an inch or two from the base of the tail; but this depends entirely upon the manner in which any one may chuse to have the horse carry his tail; if a very high cock-up tail should be required, the nearer the incision is made to the base of it, the likelier will this effect be to happen, and *vice versa*; or if the tail should be required to turn round, up towards the back, four or five incisions may be made, otherwise three will in general be fully sufficient: — or, if the horse's tail should be required with the point dripping downwards, two incisions will be sufficient, and the first may be made at the distance of near three inches from the setting on of the tail.

NIGHTSHADE, [*Solanum.*] Mr. Miller reckons no less than thirty-one different species of this plant, and under this head the botanists range potatoes, love-apples, egg-plant, and winter-cherry. They may be propagated by seeds or cuttings.

Deadly NIGHTSHADE, [*Solanum Lethale.*] This plant grows wild in shady waste grounds. This and the common night-shade have both been supposed cooling and discutient in external applications, and poisonous when taken internally. Late experience has shewn, that an infusion of half a grain or a grain of the dried leaves of either may be taken with safety, and that in many cases the dose may be increased by degrees to five or six grains: that they generally occasion some considerable evacuation, and sometimes, especially in the larger of the above doses, alarming nervous symptoms, which however cease with the operation of the medicine. It has been expected, that a cautious use of these very active plants would afford relief in some obstinate disorders: but though in some instances they promised great benefit, the general event of these trials has not been very favourable. The Edinburgh college, who retained these plants at the preceding revisal of their Pharmacopœia in the year 1744, have, at the late one in 1756, rejected them both.

Enchanters' NIGHTSHADE. *See* ENCHANTERS.

American NIGHTSHADE, [*Solanoides.*] This plant grows naturally in the West-Indies, and may be propagated by

by seeds, but will not bear the cold of England.

NIPPLEWORT, [*Lapsana.*] This is a common weed growing by the sides of foot paths and hedges.

NITRE, [*Nitrum.*] A salt, extracted in Persia and the East-Indies, from certain earths that lie on the sides of hills; and artificially produced in some parts of Europe, from animal and vegetable matters rotted together (with the addition of lime and ashes) and exposed for a length of time to the air, without the access of which, nitre is never generated: the salt extracted from the earths, &c. by means of water, is purified by colature and crystallization.

Pure nitre dissolves in about six times its weight of water, and concretes again in to colourless transparent crystals; their figure is that of an hexagonal prism, terminated by a pyramid of an equal number of sides. It readily melts in the fire; and in contact with fuel deflagrates, with a bright flame and considerable noise; after the detonation is over, a large quantity of alkaline salt is found remaining. The taste of nitre is sharp, penetrating, and bitterish, accompanied with a certain sensation of coldness.

Nitre is a medicine of celebrated use in many disorders. Besides the aperient quality of neutral salts in general, it has a manifestly cooling one, by which it quenches thirst, and abates febrile heats and commotions of the blood: it has one great advantage above the refrigerating medicines of the acid kind, that it does not coagulate the animal juices; blood, which is coagulated by all the mineral acids, and milk, &c. by acids of every kind, are by nitre rendered more dilute, and preserved from coagulation: it nevertheless somewhat thickens the thin, serous, acrimonious humours, and occasions an uniform mixture of them with such as are more thick and viscid; by this means preventing the ill consequences which would otherwise ensue from the former, though it has not, as Juncker supposes, any property of really obtunding acrimony. This medicine for the most part promotes urine; sometimes gently loosens the belly; but in cold phlegmatic habits, very rarely has this effect, though given in large doses: alvine fluxes, proceeding from too great acrimony of the bile or inflammation of the intestines, are suppressed by it: in choleric and febrile disorders, it generally excites sweat; but in malignant cases, where the pulse is low, and the strength lost, it retards this salutary evacuation and the eruption of the exanthemata.

Dr. Stahl has written an express treatise upon the medical virtues of nitre; in which he informs us, from his own experience, that this salt added to gargarisms employed in inflamations of the fauces in acute fevers, thickens the salival moisture upon the palate and fauces into the consistence of a mucus, which keeps them moist for a considerable time, whereas, if nitre be not added, a sudden dryness of the mouth immediately ensues: that in nephritic complaints, the prudent use of nitre is of more service than any of the numerous medicines usually recommended in that disease: that nitre gives great relief in suppression and heat of urine, whether simple or occasioned by a venereal taint; that it is of great service in acute and inflammatory pains of the head, eyes, ears, teeth, &c. in all erysipelatous affections, whether particular or universal, and likewise in chronic deliriums; that in diarrhœæ happening in petechial fevers, nitre mixed with absorbents and diaphoretics, had the best effects; always putting a stop to the flux, or rendering the evacuation salutary; that in diarrhœæ happening in the small-pox, it had been employed with the like success, two doses or three at most (consisting of two, three, or four grains each, according to the age, &c. of the patient) given at the interval of two or three hours, putting a stop to the flux, after the bezoardic powders, both with and without opium, had been given without success. The same author recommends this salt likewise as a medicine of singular service in choleras attended with great anxieties and heat of the blood; in the flatulent spasmodic heart-burns familiar to hypochondrical people; and the loss of appetite, nausea, vomiting, &c. which gouty persons are sometimes seized with upon the pains of the feet, &c. suddenly remitting. In cases of this last kind, the use of nitre surely requires great

great caution, although the author aſſures us, that no bad conſequences are to be feared from it. Nevertheleſs he obſerves, that in a phthiſis and ulcerous affections, it has been found to be of no ſervice; and that therefore its uſe may be ſuperſeded in theſe complaints. Indeed in diſorders of the lungs in general it is commonly reckoned to be rather hurtful than beneficial.

The uſual doſe of this medicine among us is from two or three grains to a ſcruple; though it may be given with great ſafety, and generally to better advantage, in larger quantities; the only inconvenience is its being apt to ſit uneaſy on the ſtomach. Some have affirmed, that this ſalt loſes half its weight of aqueous moiſture by fuſion, and conſequently that one part of melted nitre is equivalent to two of the cryſtals; but it did not appear, upon ſeveral careful trials, to loſe ſo much as one-twentieth of its weight. The officinal preparations of nitre are a decoction or ſolution in water and troches. A corroſive acid ſpirit is alſo extracted from it. It is employed likewiſe in operations on metallic bodies, for promoting their calcination, or burning out their inflammable matter.

NONE-SO-PRETTY. London pride.

NONESUCH, *or* FLOWER OF BRISTOL. Campion. *See* CHOU.

NORTHERN ASPECT. Is the leaſt favourable of any in England, as having very little benefit from the ſun, even in the height of ſummer, therefore can be of little uſe, whatever may have been advanced to the contrary: for although many ſorts of fruit-trees will thrive and produce fruit in ſuch poſitions, yet ſuch fruit can be of little worth, ſince they are deprived of the kindly warmth of the ſun to correct their crude juices, and render them well taſted and wholeſome; therefore it is to little purpoſe to plant fruit-trees againſt ſuch walls, except it be for ſuch which are intended for baking, &c. where the fire will ripen, and render thoſe juices wholeſome, which, for want of ſun, could not be performed while growing.

You may alſo plant Morello Cherries, for preſerving; and white and red Currants to come late, after thoſe which are expoſed to the ſun are gone: and if the ſoil be warm and dry, ſome ſorts of ſummer Pears will do tolerably well on ſuch an expoſure, and will continue longer in eating, than if they were more expoſed to the ſun. But you ſhould by no means plant winter Pears in ſuch an aſpect, as hath been practiſed by many ignorant perſons, ſince we find that the beſt ſouth walls, in ſome bad years, are barely warm enough to ripen thoſe fruits.

Duke Cherries planted againſt walls expoſed to the north, will ripen much later in the ſeaſon; and if the ſoil is warm, they will be well flavoured, ſo that hereby this fruit may be continued a month later than is uſual.

NOSEBLEED. Milfoil.

NOVEMBER. The ninth month of the year.

Work to be done this month in the Kitchen Garden.

Continue to ſow Beans and Peas on a warm border, to ſupport thoſe ſown laſt month.

About the middle of this month begin to cut off the leaves of Artichokes cloſe down to the ground, and throw the earth up in ridges about the plants, which will keep out the froſt better than laying long dung over them. In very ſevere weather, however, they will require a covering of ſtraw or litter.

Take up Carrots and Parſnips, and other kitchen roots, this month in a dry day, for winter ſtores. Cut the tops off cloſe, clean them from dirt, and depoſit them in a bed of dry ſand, with the crowns of the roots outwards, over which lay a covering of dry ſtraw.

Potatoes ſhould be laid in a dry room, and in froſty weather covered with ſtraw a foot thick. Examine them frequently, and take out the rotten ones, otherwiſe they will corrupt the whole ſtock.

It is a good method to gather only the outſide leaves of Spinage at this ſeaſon, for the inner ones will grow the larger againſt another gathering.

Prepare hot-beds to raiſe Aſparagus, in the manner above directed for making hot-beds.

Nurſery, Fruit, and Flower Gardens.

Prepare your land for new plantations in February or March.

Stake and tie new planted trees; lay mulch on their roots, and cover the beds of ſeedling exotic plants, in ſharp

n ſharp froſts, with hoops and mats, or totally with peas-ſtraw, &c.

Plants in pots ſhould be plunged into the earth to the rim in a warm ſituation, when they may be eaſily covered.

Open the Greenhouſe windows in the middle of the day, and water the plants as there ſhall be need.

Take care to ſhelter the choiceſt of your Tulips, Hyacinths, Ranunculus's and Anemonies, from heavy rains, ſharp froſts, and ſnow, which will deſtroy or greatly injure them; and continue to plant thoſe and other bulbous roots as in October.

Continue to tranſplant Roſes, Syringas, Honeyſuckles, and other hardy flowering ſhrubs; and prune off their irregular branches at the ſame time; you may alſo take up their ſuckers, and place them in the nurſery for increaſe.

Prepare the ground for receiving the more tender plants in the ſpring. Clear the gravel walks of weeds, moſs, and rubbiſh, and roll them once a week in a dry day; which will keep them in better order than the modiſh cuſtom of digging them up for the winter.

Trees and Shrubs in flowers

Honeyſuckles, lauruſtinus, mezereon, paſſion-flower, pyracantha in fruit, roſes, ſtrawberry-tree in fruit and flower.

Flowers.

Anemonies, aſters, Chineſe aſters, colchicums, cyclamens, daiſies, golden-rods, panſies, polyanthuſes, primroſes, ſtarworts, ſtocks, ſtriped lilies in leaf, ſunflowers, wallflowers.

NOURISHMENT *of Plants.* *See* FOOD.

NURSERY. A moſt uſeful diſtrict of gardening, appropriated for the raiſing and nurſing all ſorts of trees, ſhrubs, and herbaceous plants, to a proper growth, for ſupplying and recruiting the different gardens, orchards, plantations, &c.

In the Nurſery-garden are raiſed all the different ſorts of fruit-trees, and fructiferous ſhrubs, by the methods directed for each ſort under their proper genera, nurſing and training them up to a proper ſize & growth for planting in the garden or orchard, where they are finally to remain to produce their fruit.

Likewiſe in the Nurſery is raiſed the vaſt train of foreſt-trees, hardy ornamental trees, and ſhrubs in general, both deciduous and ever-greens of all thoſe kinds, and training them up to a proper ſize for the purpoſes for which they are deſigned in the plantations and pleaſure ground.

And in the Nurſery may alſo be raiſed all the ſorts of hardy herbaceous plants, both fibrous rooted, bulbous, and tuberous-rooted kinds, for adorning the pleaſure-garden, medical uſe, &c.

All ſorts of the above kinds may be readily raiſed together in the ſame Nurſery in ſeparate compartments.

A Nurſery thus furniſhed with the different ſorts of all kinds of trees, ſhrubs, and herbaceous plants, will prove an inexhauſtible ſource of accommodation both for private and public uſe.

The raiſing or propagation of the numerous kinds is performed by various methods, as by ſeed, ſuckers, layers, cuttings, ſlips, off-ſets, parting the roots, grafting, budding; each of which methods as directed under their proper heads; and after being raiſed by either of the above methods, & ſtationed in Nurſery-rows, they are to remain until they have acquired a proper growth for their reſpective uſes, then to be tranſplanted into the garden, orchard, plantation, &c. where they are deſigned finally to remain, to effect the ſeveral purpoſes for which they are calculated, either for uſe, ornament, or variety; obſerving, that as a recruit of ſome or other of the various ſorts will be required to be drawn off every year, to ſupply the different gardens and plantations, a freſh ſupply of young plants ſhould alſo be raiſed accordingly every year in the Nurſery, of moſt of the various kinds, ſo as to have this diſtrict always fully ſtocked with all kinds in ſeveral different degrees of growth; ſome in ſeed-beds, others tranſplanted in Nurſery-rows; ſome one year, others two, three, or ſeveral years: all of which ſhould be well attended to, both in private and public Nurſeries, that there may be a ſufficiency of plants of all ſorts for furniſhing every different department of gardening as they ſhall be occaſionally wanted.

In the public Nurſery-gardens they have alſo convenient green-houſes, glaſs-caſes, and ſtoves, with their proper appendages, for raiſing the tender exotics from the warmer parts of the world; theſe departments are always ſtationed in the warmeſt and moſt ſunny ſituation, having their front directly facing the ſouth, to have all poſſible benefit from the ſun's influence; and each principal department having its different appendages as aforeſaid, which are ſmaller departments of frame-work, ſaſhed and glazed, either adjoining to the main ones, or detached: ſerving as ſeminaries or nurſeries for raiſing and nurſing the various tender plants to a proper growth for furniſhing the other larger conſervatories.

Thus a Nurſery ground, furniſhing plants of different temperatures, will prove very valuable, and its various growths willafford the moſt agreeable ſource of variety at all ſeaſons, which to many will appear as ornamental and deſireable as the moſt elegant pleaſure-ground or flower-garden.

With reſpect to the proper extent or dimenſions of a Nurſery, whether for private uſe, or for public ſupply, it muſt be according to the quantity of plants required, or the demand for ſale; if for private uſe, from a quarter or half an acre to five or ſix may be proper, which muſt be regulated according to the extent of garden-ground and plantations it is required to ſupply with the various ſorts of plants; and if for a public Nurſery, not leſs than three or four acres of land will be worth occupying as ſuch, and from that to fifteen or twenty acres, or more, may be requiſite, according to the demand, though ſome occupy forty or fifty acres in Nurſery-ground.

In the neighbourhood of London, for eight or ten miles round, there are a great number of extenſive public Nurſeries, moſt beautifully furniſhed with a prodigious variety of all ſorts of trees, ſhrubs, and herbaceous plants, of different degrees of growth, for ſupplying noblemen and gentlemen's gardens and plantations, for ſome hundreds of miles diſtant at home and abroad; as alſo all ſorts of ſeeds. Moſt of which Nurſeries are alſo furniſhed with all proper green-houſes, glaſs-caſes, ſtoves, &c. for the raiſing all kinds of curious tender exotics for public ſupply.

With regard to ſoil for a Nurſery, the nature and quality of this, without all diſpute, requires our particular attention. The Nurſery-men generally prefer a loamy ſoil of a moderately-light temperament, if poſſible, ſuch as in moſt of the Nurſery-grounds around London: however, a Nurſery may be of any fat moderately light land, that is fifteen or eighteen inches depth of good working ſtaple, but if two or three ſpades deep it will be the greater advantage; and where there is ſcope of ground to chuſe from, always prefer that where there is a good depth, and naturally rich or fat ſoil; for the ſoil of a Nurſery cannot be too good, notwithſtanding what ſome advance to the contrary; for if ſoil prove poor and lean, the plants raiſed thereon will be languid, weak, and ſtunty; and no remedy, how artful ſoever, will be able to rectify their conſtitution, eſpecially all the tree-kinds: whereas thoſe raiſed in a good fat ſoil always aſſume a free growth, and advance with ſtrength and vigour. It is not abſolutely requiſite, however, that the ſoil ſhould be exceedingly rich, nor over carefully manured, a medium between the two extremes is beſt. A good freſh fat ſoil, ſuch as any good paſture, which having the ſward trenched to the bottom, is excellent for the growth of trees; any good fat ſoil of corn-fields is alſo extremely proper; or any other good ſoil of the nature of common garden-earth is alſo very well adapted for a Nurſery.

As to ſituation; if this be rather ſomewhat low it will be the better, becauſe it is naturally warmer, and more out of the power of cutting and boiſterous winds than a higher ſituation; though if it happens where ſome parts of the ground is high and ſome low, it may be an advantage, the better to ſuit the nature of the different plants. It is alſo of ſingular advantage to have a Nurſery-ground full expoſed to the ſun and free air; and, if poſſible, where there is the convenience of having water for the occaſional watering of ſeedlings, and ſome newly tranſplanted plants.

And as to a Nurſery for private uſe, with regard to its place of ſituation, reſpecting the other garden diſtricts, that, where there is room, it may either be

be entirely detached, or may be fomewhat contiguous to the outer boundaries of the ſhrubbery plantations of the pleaſure-ground, and ſo contrived as to lead inſenſibly into it by winding walks, ſo as to appear part of the garden.

A fence round the whole ground is neceſſary: this may either be a hedge and ditch, or a paling; the former is the cheapeſt, and in the end the moſt durable; though in ſome places where hares and rabbits abound, paling fences at firſt are eligible, for preſerving the Nurſeries from the depredations of thoſe animals, which often do great miſchief to the young plants, by barking and cropping them: a good hedge-and-ditch-fence, however, may be made very effectual againſt the inroads of both men and brutes; and the moſt eligible plant for this purpoſe is the haw-thorn.

The ground muſt then be all regularly trenched one or two ſpades deep, according as the natural depth of ſoil will admit, for by no means dig deeper than the natural good ſoil, let it be either one, one and a half, or two ſpades deep.

Then, having trenched the ground, proceed to divide it by walks into quarters, and other compartments; a principal walk ſhould lead directly through the middle of the ground, which may be from five to eight or ten feet wide, according as it ſhall ſeem proper for uſe or ornament, having a broad border on each ſide: another walk ſhould be carried all round next the outward boundary, four or five feet wide, leaving an eight or ten-feet border next the fence all the way; then may divide the internal part by croſs walks, ſo as to form the whole into four, ſix, or eight principal diviſions, which are commonly called quarters.

One or more of the diviſions muſt be allotted for a ſeminary, i. e. for the reception of all ſorts of ſeeds, for raiſing ſeedling plants to furniſh the other parts; therefore divide this ſeminary-ground into four-feet-wide beds, with foot-wide alleys at leaſt between bed and bed: in theſe beds ſhould be ſowed ſeeds, &c. of all ſuch trees, ſhrubs, and herbaceous plants, as are raiſed from ſeed; and which ſeeds conſiſt of the various ſorts of kernels and ſtones of fruit, to raiſe ſtocks for grafting and budding; ſeeds of foreſt-trees, ornamental trees, ſhrubs, &c. and ſeeds of numerous herbaceous perennials, both of the fibrous-rooted and bulbous-rooted tribe. The ſowing ſeaſon is both ſpring and autumn, according to the nature of the different ſorts, which is fully illuſtrated under their proper genera; and when the young tree and ſhrub ſeedling-plants ſo raiſed, are one or two years old, they are to be planted out in Nurſery-rows into the other principal diviſion; but many kinds of herbaceous plants require to be pricked out from the ſeed-beds, when but from two to three or four months old. On the other hand, moſt kinds of bulbous ſeedlings will not be fit for planting out in leſs than one or two years.

Another part of the Nurſery-ground ſhould be allotted for ſtools of various trees and ſhrubs, for the propagation by layers, by which vaſt numbers of plants of different kinds are propagated. Theſe ſtools are ſtrong plants of trees and ſhrubs, planted in rows three or four feet diſtant every way, and ſuch of them as naturally riſe with tall ſtems are, after being planted one year, to be headed down near the ground, to force out many lower ſhoots conveniently ſituated for laying.

The other principal diviſions, therefore, of the Nurſery-ground, is for the reception of the various ſorts of ſeedling-plants from the above ſeminary-quarters; alſo for all others that are raiſed from ſuckers, layers, cuttings, &c. there to be planted in rows from one to two or three feet aſunder, according to their natures: obſerving to allow the tree and ſhrub-kinds treble the diſtance of herbaceous perennials.

Of the tree and ſhrub-kinds ſome are to be planted for ſtocks to graft and bud the ſelect ſorts of fruit-trees upon, and other choice plants, which are uſually propagated by thoſe methods; others are trained up entirely on their own roots without budding and grafting, as in moſt foreſt and other hardy tree-kinds; as alſo almoſt all the ſorts of ſhrubs.

Here

Here they are to remain to have two, three, or feveral years growth, according as they ſhall require for the feveral purpoſes for which they are deſigned in their future ſituations in the garden, &c. which is directed in their reſpective cultures.

With regard to the manner of performing the various methods of propagation for raiſing the numerous Nurſery-plants, it is fully exhibited under the following heads, in the courſe of this work: *ſowing ſeeds—layers—cuttings—ſuckers—ſlips—off-ſets—parting roots—grafting—inoculation.* And the ſorts that are uſually propagated by either of thoſe methods are pointed out under their feveral reſpective heads, with particular directions of the feveral ways each method is performed on the different kinds.

The ſeaſon for performing the works of ſowing, planting, &c. is different in different kinds, but autumn and ſpring are the principal ſeaſons.

Some ſorts require to be ſowed in autumn, others not till ſpring, which is particularly explained for the various ſorts undr the articles themſevles.

And as to planting ortranſplanting, the principal ſeaſon is from October until March, or even until April for tender kinds, eſpecially many of the ever-green tribe; but all hardy trees and ſhrubs may be tranſplanted any time in winter, in open mild weather from October until March, as juſt obſerved; and for the tender kinds of ever-greens, &c. early in autumn, or not till ſettled weather in ſpring, is the proper time to remove theſe ſorts.

But as to hardy herbaceous fibrous-rooted plants, they may be tranſplanted almoſt any time in autumn or ſpring; even many ſorts in ſummer, when planting them out from the ſeminary: obſerving, however, autumn and ſpring are the proper planting-ſeaſons for older or larger plants; and which are alſo the only proper ſeaſons for dividing or ſlipping the roots of all theſe kinds of plants for increaſe.

As for bulbous-rooted kinds, & all ſuch tuberous roots whoſe leaves decay in ſummer, the proper ſeaſon for planting or tranſplanting them is from May or June until the beginning of Auguſt, when their flower-ſtalks decay, which in ſome ſorts happens early and ſome late in the ſummer; but as ſoon as it happens in the different ſorts, is the only proper time to remove all thoſe kinds of plants when neceſſary, as alſo to ſeparate their off-ſets for increaſe; and which may either be planted again directly, or kept out of ground one, two, or ſeveral months, though it is proper to plant the principal part again in autumn, unleſs where any is to be retained for ſale.

Succulent perennials may be tranſplanted almoſt any time from March or April until Auguſt or September, which is the beſt ſeaſon for removing theſe kinds; and moſt kinds of ſucculent cuttings ſucceed beſt when planted in ſummer.

In the diſtribution of all the various ſorts of plants in the Nurſery, let each ſort be ſeparate: the fruit-trees ſhould generally occupy ſpaces by themſelves; the foreſt-trees, &c. ſhould alſo be ſtationed together; all the ſhrub kind ſhould alſo be ranged in ſeparate compartments; allot alſo a place for herbaceous perennials; a warm place ſhould likewiſe be allotted for the tender kinds, and incloſed with yew hedges, or a reed hedge, &c. in which compartments you may ſtation all ſuch plants that are a little tender whilſt young, and require occaſional ſhelter from froſt, yet are not ſo tender as to require to be houſed like green-houſe plants, &c. ſo that in ſuch compartments there may alſo be frames of various ſizes, either to be covered occaſionally with glaſs-lights, or with matts, to contain ſuch of the choicer of the above tender kinds in pots, to be nurſed up a year or two, or longer, with occaſional ſhelter, till hardened gradually to bear the open air fully.

The arrangement of all the ſorts in the open grounds, muſt always be in lines or Nurſery-Rows, to ſtand till it arrives at a proper growth for drawing off for the garden and plantations; placing the fruit-tree ſtocks, &c. for grafting and budding upon, in rows two feet aſunder, if for dwarfs; but ſtandards two feet and a half, and a foot and half in the lines; though after being grafted and budded, they then

commencing fruit-trees, &c. that if they are to ſtand to grow to any large ſize, they ſhould be allowed the width of a yard between the rows. Foreſt-trees ſhould alſo be placed in rows from two or three feet aſunder, and half that diſtance in the rows; varying the diſtance both ways according to the time they are to ſtand; the ſhrub kind ſhould likewiſe be arranged in rows about two feet aſunder, and fifteen or eighteen inches diſtant in each line; and as to herbaceous plants, they ſhould generally be diſpoſed in four-feet-wide beds, in rows from ſix to twelve or eighteen inches aſunder, according to their nature of growth, and time they are to ſtand.

By the above arrangement of the various ſorts of hardy trees, ſhrubs, and herbaceous plants, in rows at thoſe ſmall diſtances in the Nurſery, a prodigious number of plants are contained within a narrow compaſs, which is ſufficient room, as they are only to remain a ſhort time; and that by being thus ſtationed in a little compaſs, they are more readily kept under a proper regulation for the time they are to remain in this department.

But in the public Nurſeries they often plant many kinds of ſeedling-trees and ſhrubs in much cloſer rows at firſt planting out, than the diſtances above preſcribed, not only in order to huſband the ground to the beſt advantage, but by ſtanding cloſer, it encourages the ſtem to ſhoot more directly upward, and prevents their expanding themſelves much any where but at top, as for inſtance, many ſorts of ever-greens that are but of ſlow growth the firſt year or two, ſuch as the pine-trees, firs, and ſeveral others; which the Nurſery-gardeners often prick out from the ſeminary, firſt into four-feet-wide beds, in rows, length-ways, ſix inches aſunder; and after having one or two years growth here, tranſplant them in rows a ſpot aſunder; and in a year or two after give them another and final tranſplantation in the Nurſery, in rows two or three feet aſunder, as obſerved above; and by theſe different tranſplantings, it will encourage the roots to branch out into many horizontal fibres, and prepare them better for final tranſplantation, which is the more particularly neceſſary in ſeveral of the pine and fir kinds, and ſeveral other ever-greens, as is more fully exhibited under their proper genera.

With reſpect to the different methods of planting the various ſorts of Nurſery-plants, after being raiſed either by ſeed, layers, cuttings, &c. it is performed in ſeveral ways to different ſorts; ſome are pricked out by dibble, others are put in by the ſpade, either by trenches, ſlitting-in, trenching, or holing; and ſome are drilled in by a ſpade or hoe.

As to moſt of the tree and ſhrub-kind, ſometimes the young ſeedling-trees and ſhrubs are pricked out from the ſeminary by dibble; ſometimes they are put in by the ſpade in the following methods: firſt, having ſet a line to plant by, ſtrike the ſpade into the ground with its back cloſe to the line, and give another ſtroke at right angles with it; then ſet a plant into the crevice made at the ſecond ſtroke, bring it cloſe up into the firſt made crevice even with the line, and preſs the mould cloſe to it with the foot; then proceed to plant another in the ſame way, and ſo proceed till all is planted. A ſecond method is for plants with rather larger roots: ſtrike the ſpade down with its back cloſe to the line, as aforeſaid, and then with a ſpade cut out a narrow trench, cloſe along the line, as practiſed in planting box-edgings, making the ſide next the line perfectly upright; then placing the plants upright againſt the back of the trench cloſe to the line, at the proper diſtances, before mentioned; and as you go on, trim in the earth upon their roots: and when one row is thus planted, tread the earth gently all along cloſe to the plants; and then proceed to plant another row. A ſecond method of planting-out ſmall tree and ſhrub plants is, having ſet the line as above, then turning the ſpade edgeways to the line, caſt out the earth of that ſpit, then a perſon being ready with plants, ſet one in the cavity cloſe to the line, and directly taking another ſuch ſpit, turn the earth in upon the roots of the plant, and then placing another plant into the ſecond cut, cover its roots with the earth of a third ſpit,

ſpit, and ſo on to the end: but ſometimes, when the roots are any thing larger, holes are made along by the line wide enough to receive the roots freely every way; ſo covering them in, as above, as you go on: obſerving always to preſs the earth gently with the foot cloſe to the roots, and cloſe about the ſtems, to ſettle the plants firmly in their proper poſition.

Herbaceous fibrous-rooted plants are, for the moſt part, planted with a dibble, except when the roots are larger and ſpreading, or ſuch as are removed with balls of earth; then they are more commonly planted by holeing them in with a garden trowel, or ſmall ſpade.

Bulbous and tuberous-rooted plants, ſuch as lilies, tulips, anemonies, ranunculas, &c. are very commonly planted with a dibble, but many ſorts may alſo be drilled in with a hoe. Theſe ſorts are alſo ſometimes planted as follows: rake or trim the earth from off the top of the beds from about three to four or five inches deep, into the alleys, then place the roots in rows upon the ſurface, and immediately cover them with the earth which was drawn off into the alleys for that purpoſe, ſpreading it evenly over every part, ſo as to bury all the roots an equal depth.

But as to the tender kinds of exotic plants they require occaſional ſhelter whilſt young, many of them ſhould be potted, in order for moving to a warm ſituation in winter, or ſome into frames, &c. to have occaſional ſhelter from froſt, by glaſſes or mats, as they ſhall require; hardening them, however, by degrees, to bear the open air fully in the Nurſery they ear round.

And the moſt tender kinds, that require the aid of a green-houſe and ſtove, muſt all be potted, and placed among the reſpective plants of thoſe conſervatories.

With reſpect to the management of the various hardy Nurſery-plants;

Thoſe deſigned as ſtocks for fruit-trees ſhould have their ſtems generally cleared from lateral ſhoots, ſo as to form a clean ſtraight ſtem, but never to ſhorten the leading ſhoot, unleſs it be decayed, or become very crooked, in which caſe it may be proper to cut it down low in ſpring, and it will ſhoot out again; training the main ſhoot for a ſtem, with its top entire for the preſent, till graſted or budded; and as to the graſting and budding them, that work is full directed under theſe articles, and their general method of training, whether for dwarfs or ſtandards, is alſo particularly exhibited under thoſe two heads, and in the reſpective genera of the various ſorts.

Foreſt-trees ſhould alſo be encouraged to form ſtraight clean ſtems, by occaſional trimming off the largeſt lateral branches, which will alſo promote the leading top-ſhoot in aſpiring farther in height; always ſuffering that part of each tree to ſhoot at full length, that is not to top it, unleſs, however, where the ſtem divides into forks, to trim off the weakeſt, and leave the ſtraighteſt and ſtrongeſt ſhoot or branch, to ſhoot out at its proper length to form the top, as above.

The different ſorts of ſhrubs may either be ſuffered to branch out in their own natural way, except juſt regulating very irregular growths; or ſome may be trained with ſingle clean ſtems, from about a foot to two or three high, according as you ſhall think proper with reſpect to the ſorts or purpoſes for which you deſign them in the ſhrubbery; but many ſhrubs appear the moſt agreeable when permitted to ſhoot out laterally all the way, ſo as be branchy or feathered to the bottom.

All the fruit-trees, as ſoon as graſted or budded, ſhould have all their different varieties numbered by placing large flat-ſided ſticks at the ends of the rows, for which purpoſe many of the London Nurſery-men uſe the ſpokes of old coach-wheels, or any thing about that ſize of any durable wood, painting or marking the numbers thereon, 1, 2, 3, &c. to different ſticks, entering the numbers in the Nurſery-book, with the name of the varieties to which the number-ſticks are placed; whereby you can always readily have recourſe to the ſorts wanted.

The ſame method may be practiſed to any other trees, ſhrubs, or herbaceous plants, eſpecially the varieties of particular ſorts, when they are numerous, ſuch as in many of the flowery-tribe,

as

as auriculas, carnations, tulips, anemonies, ranunculas, and the like.

With reſpect to watering the Nurſery-plants; this may be very requiſite in dry hot weather in ſpring and ſummer, to ſeed-beds and tender ſeedling-plants, while young, and when firſt planted out till they have taken good root; alſo occaſionally to new-layed layers, and newly-planted cuttings, in dry warm weather; but as to hardy trees and ſhrubs of all ſorts, if planted out at the proper time, that is, not too late in ſpring, no great regard need be paid to watering, for they will generally ſucceed very well without any: indeed where there is but a few, you may if you pleaſe water them a little, if it proves a very dry ſpring in April and May; but where there are great plantations, it would be an almoſt inſupportable fatigue, and great expence; as in many public Nurſeries, where they each winter or ſpring plant out fifty or ſixty thouſand trees and ſhrubs, and in ſome double thoſe numbers.

Every winter or ſpring, the ground between the rows of all ſorts of tranſplanted plants in the open Nurſery-quarters muſt be digged; this is particulaly neceſſary to all the tree and ſhrub-kind that ſtand wide enough in rows to admit the ſpade between; which work is by the Nurſery-men called turning-in; the moſt general ſeaſon for which is any time from October or November until March, but the ſooner it is done the more advantageous it will prove to the plants. The ground is to be digged but one ſpade deep, proceeding row by row, turning the top of each ſpit clean to the bottom, that all weeds on the top may be buried a proper depth to rot: this work of turning-in is a moſt neceſſary annual operation, both to deſtroy weeds, and to increaſe the growth of the young Nurſery-plants.

In ſummer be remarkably attentive to keep all ſorts clean from weeds; the ſeedlings growing cloſe in the ſeminary-beds muſt be hand-weeded, except the plants of all ſorts that grow in rows wide enough to introduce an hoe: this will prove not only the moſt expeditious method of deſtroying weeds, but by looſening the top of the ſoil, it will prove good culture in promoting the growth of all kinds of plants: always perform this work of hoeing in dry weather, in due time before the weeds grow large, and you may ſoon go over a large ſpace of ground, either with a large drawing-hoe, or with a ſcuffling hoe, as you ſhall find the moſt convenient.

According as any quarter or compartment of the Nurſery-ground is cleared from plants, others muſt be ſubſtituted in their room from the ſeminary; but the ground ſhould previouſly be trenched and lie ſome time fallow, to recruit or recover its former vigour; giving it alſo the addition of manure, if it ſhall ſeem proper; and after being trenched in ridges, and having the repoſe only of one winter, or ſummer, or a year at moſt, it will ſufficiently recover its vegetative force, and may be planted afreſh.

It will be of advantage to plant the ground with plants of a different kind from thoſe which occupied it before.

The tender or exotic plants of all kinds that require ſhelter only from froſt, whilſt young, as we formerly mentioned, and by degrees become hardy enough to live in the open air, ſhould, ſuch of them as are ſeedlings in the open grounds, have the beds arched over with hoops, or rods, at the approach of winter, in order to be ſheltered with mats in ſevere weather; and thoſe which are in pots, either ſeedlings or tranſplanted plants, ſhould be removed in October in their pots to a warm ſunny ſituation, ſheltered with hedges, &c. placing ſome cloſe under the fences facing the ſun, where they may have occaſional covering of mats in froſty weather; others that are more tender may be placed in frames, to have occaſional covering either of glaſs-lights or mats, &c. from froſt; obſerving of all thoſe ſorts here alluded to, that they are gradually to be hardened to the open ground, and need only be covered in froſty weather; at all other times let them remain fully expoſed, and by degrees, as they acquire age and ſtrength, inure them to bear the open air fully; ſo as when they arrive at from two or three to four or five years old, they may be turned out into the open ground. The ſorts requiring this treatment are pointed out under their proper heads.

NUT. *See* FILBERT.

Bladder NUT. *See* BLADDER.

Earth NUT. *See* EARTH.

Phyſic NUT. This plant grows naturally in the Weſt-India iſlands, where the ſeeds are uſed as phyſic; it riſes with a ſtalk to the height of 12 or 14 feet.

Piſtachio NUT. *See Piſtachio.*

Malabar NUT. *See* MALABAR.

Wall NUT. *See* WALNUT.

NUTMEG, [*Nux Moſchata.*]. The kernel of a roundiſh nut which grows in the Eaſt-Indies. The outſide covering of this fruit is ſoft and fleſhy, like that of a walnut, and ſpontaneouſly opens when the nut grows ripe; immediately under this lies the mace, which forms a kind of reticular covering; through the fiſſures whereof appears a hard woody ſhell that includes the nutmeg. Theſe kernels have long been made uſe of both for medicinal and culinary purpoſes, and deſervedly looked upon as a warm agreeable aromatic. They are ſuppoſed likewiſe to have an aſtringent virtue; and are employed in that intention in diarrhœas and dyſenteries. Their aſtringency is ſaid to be increaſed by torrefaction, but this does not appear to the taſte: this treatment certainly deprives the ſpice of ſome of its finer oil, and therefore renders it leſs efficacious to any good purpoſe; and if we may reaſon from analogy, probably abates of its aſtringency. Nutmegs diſtilled with water, afford a large quantity of eſſential oil, reſembling in flavour the ſpice itſelf; after the diſtillation, an inſipid ſebaceous matter is found ſwimming on the water; the decoction, inſpiſſated, gives an extract of an unctuous, very lightly bitteriſh taſte and with little or no aſtringency. Rectified ſpirit extracts the whole virtue of nutmegs by infuſion, and elevates very little of it in diſtillation: hence the ſpirituous extract poſſeſſes the flavour of the ſpice in an eminent degree.

Nutmegs yield to the preſs (heated) a conſiderable quantity of limpid yellow oil, which in cooling concretes into a ſebaceous conſiſtence. In the ſhops we meet with three ſorts of unctuous ſubſtances, called oil of mace, though really expreſſed from the nutmeg. The beſt is brought from the Eaſt-Indies, in ſtone jars; this is of a thick conſiſtence, of the colour of mace, and an agreeable fragrant ſmell: the ſecond ſort, which is paler coloured and much inferior in quality, comes from Holland in ſolid maſſes, generally flat and of a ſquare figure: the third, which is the worſt of all, and uſually called common oil of mace, is an artificial compoſition of ſerum, palm oil, and the like, flavoured with a little genuine oil of the nutmeg. Theſe oils yield all that part in which their aromatic flavour reſides, in diſtillation, to water, and to pure ſpirit by infuſion: the diſtilled liquor and ſpirituous tincture nearly reſemble in quality thoſe prepared immediately from the nutmeg. The officinal preparations of nutmegs are, a ſpirituous water, eſſential oil, and the nutmegs in ſubſtance roaſted. The nutmeg itſelf is uſed in the compound horſeradiſh water, compound ſpirit of lavender, cordial confection, cardialgic troches, and ſyrup of buckthorn; its eſſential oil, in the volatile aromatic ſpirit, and the expreſſed oil in mithridate and theriaca, ſtomachic and cephalic plaſters and cephalic balſam.

NUX VOMICA. This is the poiſonous ſeed of a plant growing in Malabar. *Uſed for Bilt Rats*

O.

OAK, [*Quercus.*] Botaniſts and nurſerymen reckon a great number of ſpecies; but as we write chiefly for the uſe of the farmer, we ſhall confine ourſelves to the cultivation of the ſovereign of the woods.

The oak is a large tree with a rough bark, ſpreading branches, and large leaves, deeply waved at the edges: the flowers are inconſiderable; they are a kind of brown threads: the fruit is the acorn, ſtanding in a cup, and growing in ſome trees on a longer, and in others on a ſhorter foot-ſtalk; from which difference ſome have diſtinguiſhed two kinds of oak. Others have, in the ſame manner, divided the oak into two kinds, one of which riſes more in height, and the other, which they call the wild oak, ſpreads more into branches. But theſe are accidental varieties, not diſtinct kinds.

The oak will grow in almoſt any ſoil: this we ſee in fact, as we find oaks on all kinds of land. We ſee it on clayey, ſandy, and ſtony ground: but thoſe who have made ſtrict obſervations declare, that in the clayey ſoils it obtains moſt firmneſs, but in theſe the growth is ſlow. The beſt earth for oak, where there is choice, is a rich loam. This is a ſound and commonly a deep ſoil. Too much wet is an enemy to the oak, ſo that it ſhould be guarded againſt; and 'tis principally for this reaſon that it grows beſt on ſomewhat riſing grounds, for they are naturally more dry than the abſolute flats on which the wet lodges and remains.

When the ground is too moiſt, the oak puts out moſt branches, and the trunk is defrauded of its due nouriſhment; in very dry and expoſed places it grows low and ſtubbed.

The timber in too moiſt ground is ſofter, and in theſe hilly and barren places it is harder than its uſual quality, but 'tis there of an uneven grain, and leſs uſeful.

The fineſt oak timber is that which has grown on a firm good ſoil, rather inclining to clay than any other particular quality, and where there is not too much moiſture.

The oak is propagated three ways; firſt, from ſeed, or the acorn; ſecond, by raiſing in a nurſery, and then tranſplanting; and, thridly, by taking up young ſets out of the woods, where they have riſen from the fallen acorns, and are uſually plentiful enough.

Of theſe methods we altogether prefer that of raiſing the oak from the acorn, in the place where it is to grow. The oaks from the nurſery are commonly twice tranſplanted to come to their ſtanding place, and this gives them two checks greater or leſs; and diſpoſes them twice to an unevenneſs in the growth: as to the ſets taken out of woods, they are the worſt way of all. Idleneſs or frugality may tempt thoſe who will not raiſe, or purchaſe the young ſets out of a nurſery, to do this, but theſe wild ones, having been raiſed under too much ſhade, are uſually very ill ſhaped; and as they are planted out into more expoſed places, they commonly get an ill growth.

Of raiſing Oaks by Tranſplantation.

If any one in ſpite of theſe diſadvantages will plant the wild ſets, the method he is to take is to cut them off cloſe to the ground, with a ſharp knife, and by a ſlanting ſtroke, as ſoon as they are planted. This gives the root time to recover ſome ſtrength, and as it affords a new ſhoot, that is often better than the original plant. But in this caſe the diſadvantage is plain, for it is evident that it would be better

this

this ſhoot roſe from the root than from a ſtump.

Thoſe who raiſe oaks in a nurſery for tranſplantation muſt obſerve a different method from what is to be followed by ſuch as ſow them where they are to ſtand. They are to proceed thus. Let the acorns be ſhook, as ſoon as fully ripe, from a ſtout branch of a well-growing oak, and immediately ſown in the nurſery, for the air withers them.

They are to be ſet in lines, at two inches aſunder, and about two inches and a half deep in the ground. They will ſhoot the ſucceeding ſpring, and they ſhould be ſuffer'd to ſtand till that time twelvemonth: then they are to be tranſplanted into another part of the nurſery, and ſet at eighteen inches diſtance, in rows three feet aſunder. They are to be watered a little when firſt tranſplanted, but this muſt be carefully done, for too much water is apt to hurt the oak, eſpecially when young.

The oak is a particular tree, and requires, as will as deſerves, a particular care in its management. In many little reſpects the conduct is to be different from that obſerved in the raiſing the generality of trees; and it is to a want of regard to theſe, that ſo many young oaks are loſt more than of other trees.

The young trees thus tranſplanted are to be watered ſometimes in dry ſeaſons, and kept clear from weeds. It is alſo good to dig between the rows: for this, by breaking the ſoil, affords them a greater ſupply of nouriſhment, and at the ſame time it cuts off the ſtraggling or far-ſpreading roots, which will make the young trees bear their next tranſplantation the better.

During the time they ſtand in theſe beds they are to be regulated in their growth, but in this only a little is to be done. They who cut off the head deſtroy the tree, for if there be not a leading ſhoot to conduct the top, the whole will periſh. Neither are many of the ſide branches to be taken off, but only ſuch as tend to too much ſpreading. The planter is to remember that the trunk of the oak is to be his beſt benefit; he muſt therefore cut off ſuch very ſpreading branches, as would draw the ſap away from it and ſtarve it: but it is prudent to leave a competent number of the others, to draw up the ſap. When an oak in this young ſtate is too cloſe pruned, the head is always ſeen to grow over proportioned, and weighs down the tree, and ſpoils its future progreſs.

When the trees have ſtood about four years; that is, when they are between five and ſix years old from the ſowing, they may be conveniently tranſplanted. They are at this time of a pretty ſize and having been thus pruned ſhew well. It is dangerous to move them in the common way, when they are older, for the oak bears removing, when grown to a ſize, worſe than any other tree.

The time for tranſplanting them is juſt before they begin to ſhoot; and it is prudent to chuſe a ſhowery ſeaſon: if no rain fall, they muſt be gently watered, as before directed, and ſtaked up to keep them ſtrait.

This is the method for raiſing oaks by tranſplantation; and when they are wanted for beauty and ornament, as for clumps in parks, and for wilderneſſes in large gardens, this is a very good way, becauſe they may be had of a proper growth from the common nurſeries: or from the owner's own ſtock, raiſed there for other purpoſes. But when oaks are intended for timber; and uſe and value are more ſtudied than ornament; 'tis by much the beſt method to raiſe them from the acorn, in the places where they are always to continue.

Of raiſing Oaks from the Acorn.

When the oak is to be raiſed immediately from the acorn, a different method, and different ſeaſon, are to be obſerved for ſowing.

Let the acorns be gathered when full ripe, from a thriving tree, and immediately ſpread upon the floor of a dry ſhady room; when they have lain a week, frequently turning them, let them be put up in large garden pots, with a quantity of dry ſand, and laid by for the winter.

Early in ſpring let the ground be marked out where the plantation is to be made, and at the diſtance of forty feet every way, let the holes be opened for receiving the ſeed. Theſe are to be dug two ſpit deep, and the earth well broken

broken, four or five acorns ready to put into each. and covered two inches deep, and when they have ſhot, and acquired a little growth, all the plants, except the one beſt in each hole, are to be taken up, and that ſingle plant in each hole is to be nurſed up for ſome years with due care.

The head of theſe young trees is to be ſuffered to grow, and none of the branches are to be cut away, except ſuch as ſpread out too wide, as in the nurſery; and if it happen that in ſpite of the care in the choice of thoſe ſhoots which have been ſuffered to ſtand, any one be uneven; the beſt method is to cut it off at the ground, and wait for a new and better ſhoot.

A plantation of oak thus made, if the ſoil be tolerable, is a fortune for the ſucceſſor in the eſtate; but it is not limited to that; men enter too late upon theſe ſtudies, otherwiſe they might reap the benefit of their plantations themſelves. If a man would begin to plant at eight and twenty, and ſhould live to ſee ſixty-three, there is a ſpace of five and thirty years, which is a time for raiſing even an oak plantation, ſlow as that is in growth, to very conſiderable value, though not to its full price, or nearly to that.

It is not eaſy to give what can be called a middle calculation for the growth of the oak, it differs ſo prodigiouſly in reſpect of the ſoil, ſituation, and other circumſtances. We have ſeen oaks of thirty four years fourteen inches in diamater.

An oak of this bigneſs is but advancing toward the proper time of felling, and towards its value; but if the neceſſities of the owner induce him to ſell theſe, the price of the worſt tree among them would pay for the labour and charge of the plantation.

If the young plants, when they riſe in theſe ſpots, appear almoſt above the ground, or ſtand too high with their roots, the beſt method is to lay up a parcel of fine earth againſt the bottom of that which is the moſt thriving ſhoot. This happens ſometimes from the acorns being not ſet deep enough, and ſometimes from the weather: for after a froſt the mould will riſe, and bear up the young ſhoot with it.

Acorns are not to be buried too deep, eſpecially in a moiſt ſoil, for they often rot: and, on the other hand, they muſt not be ſet too ſhallow: for it not only makes the ſhoot ſtand too high; but frequently the field mice find them out, and devour the hopes of the plantation.

The quantity of ground taken up by this plantation, at forty feet diſtance, is not to be ſuppoſed waſted: for though the oaks will, in their larger growth, require that diſtance, they do not at firſt. For many years aſhes may be raiſed upon the ground between the oaks, for poles, and cut to a great advantge. Underwood of all the ſhrubby or coppice wood kinds may alſo be planted for a time, if the ground be fit for it: or it may be grazed, and will loſe little of its value for many years. Nay, the planting the trees at this diſtance is the only way to preſerve a value in the ground for theſe purpoſes; and when the ſoil is good, it will continue to yield fine paſture.

Of the Uſes of the Oak.

No plantation whatſoever exceeds that of oak, when made in this manner: and to thoſe who will ſuffer it to ſtand a proper time, none equals it in value. By this management the trees will all riſe with a ſingle ſtrait and upright ſtem, and their branches ſpreading every way with a beautiful regularity, make, when cloathed with their large and fair leaves, a beautiful appearance. Their ſhade is preferable to that of any tree whatſoever: their very imperfections and excreſcences, the oak apples, oak cones, and oak grapes, are beautiful; and the air is perfumed and rendered healthy by blowing over them.

Among the excreſcences of the oak, we have not followed the common cuſtom of ranking the herb, called miſletoe; becauſe it is not an excreſcence, but a regular plant, riſing from its own ſeeds, but whoſe place of growth is not the ground, but the bark of ſome tree; and no trees afford it ſo ſeldom as the oak.

Its fruit, which a good and well-grown oak bears annually in vaſt abundance, is an excellent food for Hogs. No fruit feeds them ſo well, it gives their fleſh alſo an excellent taſte. The flavour of the Weſtphalia hams is

is owing to this food. They are made from wild ſwine that live in the foreſts; and it would, doubtleſs, be an improvement of our hogs fleſh intended for that ſervice, if the creature were fed with acorns; which can only be done to advantage by letting them run about.

That they give a flavour to the fleſh of ſuch hogs as eat them in abundance, is not to be queſtioned; for our country people, who are not accuſtomed to that taſte in bacon, always feed their hogs ſome time with peaſe after the acorns, to take off the flavour.

The effect of food on creatures in giving a taſte to their fleſh, is not to be doubted. The Heath-Cock of Germany is not eatable in autumn, except by the peaſants, becauſe its fleſh taſtes ſo ſtrongly of the Juniper berries he eats at that ſeaſon; and as to the effect of particular food on hogs, an inſtance is given in the Philoſophical Tranſactions of the very bones of a pig being tinged red, by its eating madder root at a dyer's.

The hog is the creature that eats acorns moſt freely and naturally, and is beſt fed with them; but what nature has meant as food to one animal, may, by proper management, or in neceſſity, be made food to others; all poultry will eat acorns if broke ſmall, and given them among other food, and nothing fattens them more. They have alſo been given to oxen, and other cattle, among their dry food; and we read that before the cultivation of land was ſo well known, they were, in part, the food of mankind.

Their effect in fattening the hog is ſupported by ſufficient experience. A peck of acorns a day, with a little bran, will, it is affirmed, upon good authority, make a healthy hog encreaſe a pound each day in his weight, for fifty or ſixty days together.

The bark of the Oak ſerves the tanner, and fetches a large price; the dyers alſo uſe it: and it has been diſcovered ſome years ſince, that the young branches of the oak cut and ground to pieces in a mill, anſwer all the purpoſes of the bark, and that in as great perfection on theſe occaſions.

We have mentioned ſaw-duſt among the articles uſeful as manures; and experience ſhews that none is ſo excellent for that purpoſe as the duſt of the oak: this is natural enough, becauſe the oak is the moſt firm and ſolid of all our timber. Thoſe who have tryed the experiment ſay alſo, that of the kinds of wood aſhes uſed in dreſſing of land, the oak claims greatly preference.

All theſe however are but, as it were, accidental articles of value in the oak, its great worth is in the timber, which in ſolidity, ſtrength, and ſoundneſs, exceeds all our other kinds, and is therefore the moſt fit for great and laſting uſes. Of all kinds of wood yet known in this part of the globe, the oak is in its ſervice the moſt univerſal.

Beſide its prodigious uſe in our ſhipping, it is called for, on a thouſand occaſions, in buildings, and for inſtruments. It reſiſts the injuries of weather more than any other wood, which is not a wonder; for even the fire takes effect upon it much ſlower than on any other timber whatſoever: and ſome of it is ſo hard that the beſt tools will ſcarce work upon it.

In water-works, where the timber is expoſed both to the air and the water, no wood ſtands like the oak: and no wood is equal to it in the ſupport of burthens. The ebony and ſome other foreign woods, when they are very hard and firm, cut as difficultly as oak, but if they are tryed in the ſupporting of burthens, they ſtart and fly under half the weight that a piece of oak of the ſame ſize will ſupport with perfect ſafety.

Even the defects, as they naturally appear of oak, ſerve to give it ſtrength for certain particular purpoſes. Thus it is not unuſual for an oak trunk to grow a little twiſted: this may be diſcovered through the bark as it is ſtanding, but is very viſible when the tree is felled and ſtripp'd: the trunk of ſuch an oak is uſeful beyond any other, for the ſupporting vaſt weights. Where poſts and columns are required for ſuch a purpoſe, nothing equals it.

In buildings, the ſtraiteſt, fineſt, and eveneſt growing pieces of oak are uſually wanted, and they bring their price accordingly; but for engines, where a vaſt ſtrength is required, the

body of one of thoſe ſtubbed, and rough grained oaks, which are not fit for other purpoſes, and which are ſo hard that a tool will ſcarce pierce them, is ſuperior to any thing.

There is no oak, while ſound, that is not fitted for ſome purpoſe. Thoſe parts which will not do for greater uſes make pales, poſts, coopers ware, and laths; all which bring their price to the owner: even the leaſt pieces are worked into the pins and pegs uſed in tyling, and that way are of value.

Oaks that grow crooked, and firm withal, make what they call knee timber for ſhipping. The knotticſt and rougheſt peices are fit for piles in water-works; and mill wheels, and ſpokes for other wheels, are made from the proper pieces.

Beſide all the uſes of the oak in its various conditions, conſidered as a timber tree, we are yet to conſider it as a part of the coppice wood plantation; and no kind is there more valuable. The oak maintains its character in every condition, and is every where of value.

When the oak is ſown among the coppice wood, to be felled with it at twelve or fourteen years growth, it yields excellent poles for hoops. 'Tis uſual to make theſe of aſh, and ſome take hazel; but the preference is due to the oak hoop beyond all degree of compariſon: the aſh does not exceed the hazel for hoops half ſo much as oak exceeds the aſh. An oak hoop will laſt out ſeven of any other timber.

The ſmaller kinds of poles ſerve as ſtaves, and the leaſt make our walking ſticks. The root of the oak, where it is knotty and firm, has alſo great beauty when uſed by the turner or inlayer.

Thus we ſee that this ſerviceable and univerſally uſeful tree ſupplies us with materials of all kinds, as timber, from the ribs of a man of war to a walking ſtaff, and from the main beam of a houſe to the pegs in the tiling; not the leaſt particle of it but is uſeful. Even ſuch as is fit for nothing elſe in the coppice oak is good for firing; whether ſplit into billets from the larger pieces, or cut into faggots, it excels other wood. The charcoal that is made of the oak is better than any other.

Of the Growth of Oak Trees.

The growth of the oak is not only vary different on various ſoils; but it has been found by nice obſervation, to very exceedingly at different periods on the ſame place. For inſtance, an oak has been obſerved to grow very freely and very well for twenty ſucceſſive years: at the end of this time it has come to a ſtop, and has for ten or a dozen years made little progreſs. From this time it has begun to grow again, and has continued in its uſual way increaſing viſibly in height and thickneſs.

This, though ſeeming to ariſe from ſome hidden cauſe in the tree itſelf, is really owing to the ſoil. The tree being planted in a good earth, ſpreads out its roots, and flouriſhes extreamly well, ſo long as they remain within the compaſs of that coat or layer of the ground; but when they have pierced through that, and got into ſome other ſtarving and poor earth, they receive little nouriſhment, and the tree comes to a ſtand. It would continue ſo all along, were it not that the ſame roots puſhing deeper and farther, find good ſoil again. Thus in the preſent inſtance, the good ſoil holds the roots twenty years, and affording ſufficient nouriſhment, the tree all that while grows freely. At the end of that time they penetrate into ſome unfavourable layer; there they are kept twelve years, all which time the tree barely lives, and hardly grows at all; till at the end of this period the roots piercing into another bed of good matter, ſupply the tree as at firſt, and it then grows and increaſes again as it did from the beginning.

It has been obſerved already, that the oak will grow in any ſoil, though it thrives differently according to the nature of that earth: but the difference that is made by ſoils in the ſpeedyneſs or ſlowneſs of the oak is not all: for the very grain of the wood is affected by it.

On barren heaths, where the bottom is ſtony, the oak is ill-grained and coarſe: the grain of that oak which has been raiſed in ſandy ſoils, is ſmoother

ſmoother and evener than any: but that which has been fed by a good firm loam, inclining to clayey, is the right ſubſtantial and true grained timber.

Though the oak will grow any where, it will be ſtopped in its growth by the interpoſition of a bed of unfavourable matter in its way: it will therefore be worth the planter's while to bore the earth with an auger where an oak plantation is deſigned to be raiſed: and that the planter may know to what a vaſt ſize and value oaks will grow when the ſoil favours them, not only in condition, but depth, we ſhall give him an account of what bigneſs ſome have ariſen to in England, as ſupported by unqueſtionable authority.

In Worklop Park the Duke of Norfork had an oak which ſpread almoſt three thouſand ſquare yards. Near a thouſand horſe might ſtand under the ſhade of it: Plot, in his Oxfordſhire, tells us of an oak at Clifton, that ſpread eighty-one feet from bough end to bough end, and ſhaded 560 ſquare yards of ground. 'Twas computed five and twenty hundred men might ſtand ſheltered under it. The famous Robur Britanicum in Lord Norrey's park at Ricot, was computed to be able to ſhelter between four and five thouſand men.

The mainmaſt of the old Royal Sovereign was ninety-nine feet long, and near a yard thick, all of one piece of oak; and ſome of the beams of that ſhip were made from another oak near five feet thick, and were forty feet in length.

What muſt be the value of theſe trees is very evident; and there is no reaſon why any man who will take the pains in raiſing his oaks from the acorn upon the ſpot with due care, and ſee that the ſoil be perfectly fit for the growth, may not leave an inheritance of ſuch to his poſterity.

The oak requires leſs lopping than any other tree, whether it be intended for beauty, or for uſe. Nature rarely over-proportions the branches to the trunk; and they ſpread with great beauty, and grow in value with it.

Of the Felling of the Oak.

If it be true that an oak continues growing a hundred years, certainly 'tis beſt not to fell that tree till after the full period of the growth, when it can conveniently be ſuffered to ſtand ſo long; but with a view of advantage, it is idle to think of its ſtanding any longer: for certainly it can never be better than when at a full maturity.

This then is, in general, the beſt time of felling, but no particular period can be limited for each tree; for of thoſe raiſed from acorns of the ſame ſoil, ſome will thrive better than others.

More things enter into the conſideration in the article of felling the oak than any other timber; as the ſeparating of the bark for the tanners, and the like. The beſt ſeaſon is in April, which favours the ſeparation of the bark; it then riſing freely and eaſily.

At this ſeaſon the trees being marked out that are to be felled, the firſt thing to be done is to cut off ſuch arms as may damage the trunk in the fall. The manner of doing this is, by beginning below cloſe to the trunk: when they have thus cut the arm about a ſixth part through, they begin at the top near the trunk alſo, and when they come near meeting the other cutting, the arm falls off without ſplitting.

When the branches that may be hurtful in the fall are thus removed, they are to go to work upon the trunk, cutting it down as near as poſſible to the ground, becauſe the length of the timber is a very great article in its value beſide the adding to its quantity.

When the oak is down, its trunk is to be ſtripped of the bark, which will come off freely at this ſeaſon, becauſe the ſap is full and flowing; as the bark is taken off, ſet it up in ſuch a manner as it may dry beſt. After this take off the bark from the branches that were left on, and ſet up in like manner: when this is done, let the branches be cut off, and then cut it into lengths for ſale.

Of the ſeaſoning Oak, and judging of the Timber.

The wood being thus felled and cut, the next conſideration is the ſeaſoning of it, which is done ſeveral ways; but all of them require time. Green oak is fit for very few purpoſes; and a great deal of its value in many caſes depends upon the ſeaſoning.

The plaineſt and moſt familiar method is to truſt to time only, taking care

care to prevent accidents in the mean while. Thus let the timber, cut as before directed, be laid up till dry in a careful manner. Let it be taken off the ground at a dry time, and laid up in an airy place, but out of the reach of the ſun, and defended from the winds, both which crack it in drying. Let blocks be put between the ſeveral pieces, to give paſſage to the air. If this be omitted, they grow moiſt and mouldy, or breed toadſtools. In this manner time will take a proper effect, the timber will ſhrink gradually and regularly, and being thus ſeaſoned, it will ſtand when it is employed in building, or on other occaſions.

Another way of ſeaſoning oak timber is by burying it for ſome time under ground: but this muſt be done in a dry ſoil, otherwiſe it will require more ſeaſoning when it comes out than it did when it was put in.

The beſt method of all for many purpoſes, and particularly thoſe which require the beſt ſeaſoned timber, is that we learned of the Venetians, which is called the water ſeaſoning. This is done by ſinking the timber under water; and no way is ſo good to prevent its ſplitting. The Venetians keep the timber for their ſea ſervice two or three years under water before they uſe it, and then it ſtands firmly.

The water ſeaſoning is commonly done in England in this manner. When the oak is cut into boards, or pieces, they ſink it under river water for fourteen or fifteen days. Then they take it out, and lay it up carefully to dry in a cool airy place, as directed in piling up the freſh timber; preſerving it from winds and ſun, but leaving the air free paſſage amongſt it.

Oak that is cleft is not ſo apt to ſplit and crack as ſuch as is entire: and round pieces are always more ready to crack than ſuch as are ſquared. Theſe are ſtanding rules, and the workman is to conduct himſelf in his choice accordingly: pieces that are bored through ſeldom ſplit. In general, the more the oak is in its natural condition, the more liable it is to ſplit; and the more it has been cut and wrought, the leſs.

Burning the ends of poſts of oak that are to be let into the ground, has been accounted an excellent method to preſerve them a long time; and ſome have carried this practice ſo far, as to burn the ends ſo deep as to impair their ſtrength. It is at preſent much diſputed by thoſe who pretend experience on their ſide, whether this practice be of any uſe at all. If not, 'tis a great deal of trouble thrown away.

This burning naturally preſerves that part of the poſt from the worms by which it is ſubject to be gnawed under ground; and the Dutch, to prevent the ſame accident under water, cover over their piles and ſhip bottoms with pitch and tar; on which they ſprinkle ſea ſand with powder of ſea ſhells among it, and flakes of iron, ſuch as fly off in the hammering.

In the choice of oak timber, the purchaſer ſhould examine the weight and the grain; the heavieſt timber in this kind is always the beſt for purpoſes that require great ſtrength and foundneſs, and the ſmoother and evener the grain, the better for moſt occaſions. Oak is not to be truſted in any nice works, till it has been well ſeaſoned: and that from full-grown trees is preferable to ſuch as has been cut from ſmaller. But when the tree has ſtood beyond its time, the wood becomes ſomewhat brittle; this is the firſt tendency in oak to decay.

To judge of oak as it ſtands is an article of great conſequence very frequently, and nothing is ſo difficult: it is a common thing to purchaſe trees ſtanding; and in oak 'tis of great importance to be able to gueſs at their value. Were all good, nothing would be ſo eaſy; for the queſtion might be anſwered by meaſuring, inſtead of gueſſing; but nothing is ſo capable of deceiving as a tree while it ſtands. There may be many infirmities which 'tis impoſſible to diſcover till it is down; and which then greatly leſſen the value. Such as may be diſcovered we ſhall point out; as alſo the ſigns of decay.

In the firſt place, if the head of the tree be in any part dead, 'tis a ſhrewd ſign that there are more faults in the body: in this caſe it is a very good method to bore into the trunk with a ſmall piercer made auger faſhion, and obſerve the condition of what it draws out.

If

If in any tree there be a ſwelling vein perceived riſing above the level of the reſt of the tree, and covered by the bark, it is a ſign all is not well within. When this vein twiſts about in the manner of a ſtalk of ivy, it is worſt of all; and ſeldom is ſeen but where the heart of the trunk is rotten.

Finally, another very good method of judging is, to open the earth about the roots; and examine in what condition they appear. If they are freſh, ſound, and full of juice, it is a ſign all is well above; but on the contrary, when many of them are found decayed without any viſible cauſe in the ground; when ſome of them are rotten, brittle, and mouldy, all is wrong in the body of the tree. This is a part not ſo much attended to, but a decay here is a more fatal ſign than the deadneſs of a part of the head.

Upon the whole, a great deal is to be judged by the general aſpect, and that much more by thoſe who are accuſtomed to theſe things than by ſtrangers. There is a look of health in a tree that is perfectly well and ſound, which no other perfectly has. And tho' people who ſhould be judges are often deceived, yet it is their want of obſervation, or their want of knowledge, that often leads them to it. There will be faults which no perſon whatſoever can diſcover till they are ſeen in cutting through the tree; but the greater part of thoſe which debaſe the value, are not of this kind: they may be gueſſed at leaſt, if not certainly known, from ſome one or another of theſe marks on a careful inſpection.

Ever-green OAK, [*Ilex.*] Holly. *See* HOLLY.

OAK *of Jeruſalem*, [*Botrys.*] This plant is a native of America, where the ſeeds are given for worms in children. It is propagated by ſowing the ſeeds in the ſpring.

OAK *Bark. See* BARK.

OATS, [*Avena.*] The oat is diſtinguiſhed from other corn, by the grain growing in looſe panicles.

There are three principal ſorts of it.

1. The common, or manured white.

2. The black oats: which are omitted in Gerard and Parkinſon, though in ſome parts of England they are more ſowed than the former.

3. The naked oat: much ſowed in Cornwall.

To theſe we may added two others, very conſiderable.

4. The red or brown oats; and ſome, I ſuppoſe, reckon theſe the red and the gray, and all of them comprife the large Poland oat under the name of white; the ſeed of it being brought from Poland, gave it that name. And as it degenerates here in a few years, it is often brought new from thence. It is apt to ſhed after rain.

The white oat has undoubtedly the larger kernel, and turns out more meal in the grinding than the black oat; the meal of a buſhel of the white being near three pecks from the miln, and that of the black but two pecks; but then the white oat requires richer land, and will not bear cold ſo well; and as to every other article, but what they call the yield, the black is equal to the white, if not ſuperior in ſome particulars.

Oats, being a very temperate mild grain, are fit for almoſt all manner of uſes and purpoſes any ſorts of corn can be; and being an hardy grain, it will grow in almoſt any ſoil, and that with the leaſt culture of any grain whatſoever, and being very prolific, will all things conſidered, be found the moſt profitable of any grain whatſoever (except wheat.)

It is commonly known and obſerved, what great fatigues and labours the Scotch have frequently gone through, when ſupported only by a ſmall quantity of oatmeal, which is a manifeſt proof of the goodneſs and ſpirit of that grain that could enable man to go through ſuch toils and labours; and it is very well known, that moſt of the northern peaſants have little elſe to ſupport them in their hard labours, particularly in that of getting of ſtone; in which work they have been known to ſweat day after day, with no other nouriſhment but oat cake (bread) and water; and the better of them, with only an addition of a little butter and cheeſe, and a little whey or butter-milk to drink, ſeldom taſting fleſh meat or any malt liquor whatſoever.

Oats, when malted, make a very pleaſant ale, and are frequently uſed for

for that purpoſe: and they are uſed in the kitchen in a thouſand particulars, in which the flour is preferred to the flour of all other grains; and there is no pretence to ſet up any other as equal to it, except wheat, which to be ſure is to be preferred before it.

It is alſo exceeding proper for the feeding of all ſorts of fowls, and ſwine, making the ſweeteſt bacon of all feeds; though it is thought very adviſeable to give the ſwine a few peaſe, toward the end of their feeding, in order to harden their fat.

The excellency of oats, as the beſt and moſt wholeſome food for horſes, is allowed by all; and that, when they have been kept till they are thoroughly dry, there is no danger of thoſe diſtempers which commonly attend, and are frequently fatal to thoſe fed on beans.

They are equally uſeful for the feeding the cow or the ewe, to help them to milk, and to nouriſh their young; and at the ſame time will ſupport the ox in his labour, or feed him fat for the ſlaughter. And the ſtraw is valuable for food for beaſts, beyond that of all grain, and when ſome of the lighteſt oats are left in it, and only the beſt threſhed out (which is called batting) it is thought very good food for beaſts; and packs of hounds, and all other dogs, are commonly fed with oats, when ground down.

As to the ſoils, it has been mentioned that they will grow on all, and do very well on moſt, where a crop of corn can be reaſonably expected; yet oats certainly do beſt on the beſt ground, for which we may appeal to common experience, when they are ſown at the firſt breaking up good ground, or when the ground is well manured for them, which is common in the north; and in the inſtances before, and which will be mentioned hereafter, alſo fully confirm the truth of this.

The ſeed uſually allowed for an acre is four Buſhels; but in ſeveral places, they ſow ſix or more, where the ground is poor, or where ſuch an ill cuſtom has prevailed. In this article of ſeed, the farmer ought to be careful in getting what is good, and changing it from different ſorts of ſoils as in any kind of grain whatſoever, ſince he will find it equally beneficial.

Formerly they uſed not to ſow oats till March, but of late years they commonly plow for them at the beginning of February, and ſow and harrow them in from the middle of February, and ſo on; and now apply to them in this particular, the ſaying, the ſooner in the ground the ſooner out; and find by experience, that their crops are generally ripe ſooner than they formerly were when ſowed later.

If the ſowing be deferred long, as it ſometimes is till April, then it ſhould be well harrowed in; and in ſome places the wetneſs of the land almoſt obliges the farmer to the ſowing ſo late.

Miller mentions oats as a very profitable grain, and that the uſual produce is five and twenty buſhels; though he has ſometimes known more than thirty on an acre. This is a very poor account of the produce of this grain, ſince four quarters are common on very indifferent ground; and ſix or ſeven is no extraordinary crop; and ten quarters are frequently had with only one plowing without any further trouble.

There are three very conſiderable advantages the oat claims, which no other of the white corns do; nor, indeed, any other ſort of grain common amongſt us, has any pretence to vie with it in, with the leaſt appearance of reaſon.

The firſt is, that it will grow and pay frequently very well on thoſe lands, which will not anſwer to the ſowing any other ſort of grain: and this advantage is generally allowed the oat by all who write on this ſubject; which they have rather carried to an exceſs in its behalf, when they ſay, it will grow in all countries, and on all lands; that there is no ground too rich or too poor for it; which cannot be ſaid of any other grain whatſoever. So that in this reſpect oats have undoubtedly the advantage above all other grain whatſoever.

The next advantage of the oat is, that it is pretty certain to bring a very good crop, on the breaking up any any good meadow or paſture ground.

The third particular advantage of the

the oat is, the benefit arising from the goodneſs of the ſtraw for food for cattle; and, tolerable good crops may on a medium be valued at twenty ſhillings per acre, in which no other ſtraw can be compared to it as to the ſweetneſs of it for food; nor indeed is there any other ſtraw but wheat of any value to ſpeak of. And though wheat ſtraw excel it for thatch, yet oat ſtraw will laſt ſeveral years for that uſe; and, on the whole, may juſtly have its ſtraw reckoned amongſt the excellencies belonging to the oat.

There is another advantage it certainly has over the two moſt eſteemed ſorts of grain, wheat and barley, which is, that it is got with leſs plowing, requires not ſo fine a tilth, and not near ſo much manuring in general, as they do to procure an equal reſpective proportionable good crop; all which will be ſaved in the farmers out-goings.

Laſtly, It is ſuperior to all other grain but barley in its capacity of receiving the foreign graſſes to be ſowed with it, from which a great part of the advantage of all the new huſbandry particularly depends.

A late writer gives the oat the preference to barley, in this point, in the following words: "An oat crop is the "propereſt corn of all others, to ſow "any of the graſs ſeeds amongſt, if "the ground is in heart, becauſe the "ſtalks of oats are apt to ſtand ſtiffer "than barley, and thereby the crop of "graſs is in leſs danger of being "ſpoiled."

This author juſtly obſerves, "If the "ground is in heart," ſince the land ſet apart for oats is very ſeldom ſo well manured for oats, when the graſs ſeeds are to be ſown in it, as it is for barley; and, conſequently, a leſs valuable crop of the graſſes is to be expected when the land is in a poorer condition: but the right way of judging is, when they are in the ſame equal condition of goodneſs; and then to ſee, which would anſwer the beſt. But even in this caſe I would not inſiſt on its ſuperiority to barley in this particular, but only ſay it is equal to it: for the oat has other ſufficient advantages above the barley in its particular departments or on lands in which barley cannot ſo well be cultivated.

Of keeping of Oats.

The oat has one farther advantage, that it may be kept the ſecureſt and in the eaſieſt manner of moſt ſorts of grain, if not of all kinds whatſoever.

It is little ſubject to receive damage when houſed in the barn, or placed in a ſtack, on account of the nature of the ſtraw, which is both ſweet and dry, and the leaſt ſubject to be muſty of any ſort.

Oats will alſo keep very well when threſhed, and laid by in the chaff, without farther trouble or care, provided they be not laid by wet, or wet be permitted to come to them, in ſuch a degree as would ſpoil any other corn whatſoever.

But the principal method of ſecuring the product of this grain, where it is uſed as bread, is by firſt grinding it, and making it into meal, and then putting it cloſe down in an ark of wood, where it will keep good many years. This method is ſo well known in the countries where the meal is generally uſed for bread, that there is ſcarce a family but has one of theſe arks kept under lock and key, either in the dwelling-houſe, or in ſome building adjoining to it, or in their barns. In which thoſe who are able, keep a ſufficient ſtock for their families, from time to time; and thoſe who can keep it for a riſing market, often ſell at the ſame proportionable profit as thoſe do who can ſave wheat till it riſes. It is very common to put four hundred pecks of meal into one of theſe arks.

Wild OATS. A ſpecies of oats difficult to be extirpated where they have once taken poſſeſſion; for ripening before harveſt, and ſcattering their ſeed round them, they will remain in the ground till it is ploughed up again, though it be for a whole year, ſome ſay four or five years, and will then come up with the corn. The ſureſt way to deſtroy them is to lay the ground down to clover, and to mow the oats and clover together before the oats are ripe.

OCTOBER. The tenth month of the year.

Work to be done this month in the Kitchen Garden.

As October is the only time to crop a garden before winter, omit not any thing ordered now till next month.

Aromatic herbs and ſhrubs, in beds, weed; and ſpread ſome earth over them.

Aſparagus-ſtalks cut down, hoe the weeds, and ſpread earth from the paths on them.

Hotbeds prepare for forcing, and plant (three-year-old plants) for the firſt crop.

Beans, the early Mazagan, muſt be planted on a ſouth border, for the firſt crop.

Boreole, plant out the third crop, and hoe the ground about the others.

Broccoli, plant out the reſt of the fourth crop.

Cabbages, ſown in Auguſt, plant half out in a warm ſituation.

Cabbage Turneps, plant early in the month, and earth up others.

Carrots ſown in July, finiſh hoeing.

Cauliflowers, plant ſix to each glaſs, and the reſt in a frame, or under a ſouth wall.

Celery, plant out the fifth and laſt crop, and earth up the ſecond to blanch.

Coleworts, finiſh planting.

Creſs and Muſtard, ſow on a hotbed.

Endive, tie up to blanch, and plant more.

Eſchalots, Garlick, and Rocambole, plant.

Ground, which is vacant, throw in ridges.

Hoe Borecole, Brocoli, Cabbages, and Cabbage-Turneps, and draw up earth to their ſtems.

Hoe Carrots and Spinach.

Hotbeds prepare for forcing aſparagus.

Lettuces, plant out Cabbage and Brown Dutch on Aſparagus beds, ſome under glaſſes and on hotbeds for forcing.

Mint, plant in pots on a hotbed.

Muſhroom-beds cover well with ſtraw and mats, to defend them from rain.

Onions muſt be well weeded.

Peas, the early hotſpurs, ſow on a ſouth border, near the wall, for a firſt crop. As alſo

Plant Aſparagus on a hotbed, the firſt crop.

Beans, Borecole, Brocoli, Cabbages, Cabbage Turneps, Cauliflowers, Celery, Coleworts, Endive, Eſchalots, Garlick, Lettuces, Mint, Rocamboie.

Plant out, to ſtand for ſeed,

Beets, Parſley, Cabbages, Parſneps, Carrots, Turneps.

Pot herbs and ſweet-herbs on beds, weed, ſtir up the earth, and ſpread more over them.

Seeds of all ſorts ſhould be threſhed out, dried, and put into bags.

Sow creſs and muſtard on hotbeds.

Peas on a ſouth border.

Spinach, hoe for the laſt time before winter.

Weeds in every part of the garden muſt be deſtroyed.

Flower Garden and Shrubbery.

Any thing ordered laſt month, if omitted, finiſh early in this.

Auriculas and Carnations remove into ſhelter, and in wet weather cover with mats.

Bulbous roots for forcing, in pots or boxes, plant, and finiſh planting all others.

Evergreens ſtill plant, but early in the month.

Graſs walks, finiſh laying.

Gravel walks, weed, and roll when dry.

Layering of ſhrubs, finiſh, if not done.

Layers and ſuckers take off, if rooted.

Leaves, ſweep up frequently.

Mignonette ſhould be removed under glaſſes, or elſe into a green-houſe, or warm cloſet.

Perennials, finiſh planting.

Plant bulbous roots, of all ſorts, in the beginning of the month, if not done.

Box and Thrift early in the month.

Perennials early in the month.

Shrubs and trees of all ſorts.

Strawberries and Thrift for edging.

Tulips, and all other bulbous roots.

Seedlings in pots, place under a ſouth wall, and weed and earth ſeedlings in beds.

Seeds, gather in the middle of the day.

Shrubberies, finiſh pruning and hoeing.

Shrubs and trees, finiſh planting.

Tulips, finiſh planting early in the month, and all ſorts of bulbous roots.

Turf, finiſh laying early in the month

Weeds ſhould be deſtroyed by hoeing and raking off, or they will take root again.

Trees and Shrubs in Flower.

Althæas, bramble, broom, climber, honeyſuckles, jeſſamin, lauruſtinus, paſſion-

paſſion-flower, roſes, ſtrawberry trees, in fruit and flower.

Flowers.

African marygolds, anemonies, aſters, auriculas, balſams, campanulas, carnations, china-aſters, china-pinks, chryſanthemums, colchiums, cyclamens, daiſies, French-marygolds, golden rods, Guernſey lilies, lupines, marvel of Peru, mignonette, naſturtiums, panſies, pinks, polyanthuſes, primroſes, ſaffron, ſcarlet beans, ſcabiuſes, ſtarworts, ſtocks, ſunflowers, ſweet-peas, ſweet ſultan, tuberoſes, wall-flowers, and ſome others.

Fruit-Garden and Orchard.

Apples and pears gather in the middle of fine dry days, and plant the trees the end of the month.

Currants, gooſeberries, and raſpberries plant.

Nectarines and peaches plant.

Orchard or fruit-trees intended to be planted ſhould have the ground prepared and the holes digged beforehand.

Plant fruit-trees of all ſorts.

Prune all ſorts of wall-trees and ſtone-fruits.

Strawberry-beds finiſh dreſſing.

Vines prune and plant.

Wall-trees may be pruned and planted.

The Greenhouſe.

Give air very freely in the day-time.

Earth the tops of the pots.

Geraniums take in, early in the month.

Leaves clean well before the plants are ſet in order, and dead ones pick off.

Myrtles may be taken in, towards the end of the month.

Oranges ſhould not remain out this month.

Succulent plants water ſparingly.

Water myrtles, oranges, winter cherries, and all woody plants frequently.

Windows open every fine day.

OFFSETS. Young roots that ſpring and grow from roots that are round, tuberous, or bulbous; alſo the looſe, outward brown ſkins, either in tulips, onions, &c.

OILS. The beards or prickles of barley, &c.

OILY SEED, [*Seſamum.*] See *Oily* GRAIN.

OLEANDER, [*Nerium.*] Roſe bay. There are ſeveral varieties of this plant, all fine evergreens, and producing large cluſters of fine ornamental flowers; they are exotics, brought from the iſland of Crete, and both the Indies, but are hardy enough to bear the open air in ſummer, and green-houſe in winter. They are propagated by layers, cuttings, and ſuckers.

OLIVE, [*Olea.*] The ſpecies are the European, common olive tree, and the cape box leaved olive. The European riſes with upright ſolid ſtems, branching numerouſly on every ſide, twenty or thirty feet high; ſpear-ſhaped, ſtiff, oppoſite leaves, two or three inches long, and half an inch or more broad; and at the axillas ſmall cluſters of white flowers, ſucceeded by oval fruit.

This ſpecies is the principal ſort cultivated for its fruit; the varieties of which are numerous, varying in ſize, colour, and quality.

It is a native of the ſouthern warm parts of Europe, and is cultivated in great quantities in the ſouth of France, Italy, and Portugal, for the fruit to make olive-oil, which is in ſo great repute, and is tranſported to all parts, to the great advantage of thoſe countries where the trees grow in the open ground: the green fruit is alſo in much eſteem for pickling, of which we may ſee plenty in the ſhops.

The Cape Box-leaved Olive riſes with ſhrubby ſtems, branching numerouſly from the bottom, ſix or ſeven feet high; ſmall, oval, thick, ſtiff ſhining leaves; and at the axillas ſmall cluſters of whitiſh flowers; ſucceeded by ſmall fruit of inferior value.

Theſe plants in this country muſt be kept principally in pots for moving to ſhelter of a green-houſe in winter; for they are too tender to proſper well in the open ground here; though ſometimes they are planted againſt a warm ſouth wall, and ſheltered occaſionally from froſt in winter, by mulching the roots, and matting their tops; whereby they may be preſerved, and will ſometimes produce fruit for pickling; a very ſevere winter, however, often kills or greatly injures their young branches; therefore let the principal part be potted in rich earth, and placed among the green-houſe ſhrubs.

Their propagation here is commonly by layers.

The laying is performed on the

young branches in ſpring; give plenty of water all ſummer, and they will ſometimes be rooted fit for potting-off by autumn; but ſometimes they require two ſummers to be rooted effectually: when, however, they are properly rooted, take them off early in autumn, and pot them ſeparately; give water, and place them in the ſhade till they have taken freſh root; and in October remove them into the green-houſe, &c.

Thoſe you intend to plant in the open-ground, as before ſuggeſted, ſhould be kept in pots, in order to have occaſional ſhelter of a garden-frame two or three years, till they have acquired ſome ſize, and are hardened to the full air; then tranſplant them into a warm border againſt a wall: mulch their roots in winter, and mat their tops in froſty weather.

Wild OLIVE, [*Oleaſter, Elæagnus.*] There are two ſpecies, the narrow-leaved, and the thorny; both theſe trees merit culture, the firſt for the ſhrubbery, the ſecond for the ſtove; their ſilvery-leaves render them very conſpicuous, and effects a delightful variety.

Their propagation is eaſily effected by layers of their young ſhoots, alſo by cuttings, which will be rooted in one year, and may then be tranſplanted, placing the hardy kinds in the nurſery, to have two or three years growth, when they will be fit for the ſhrubbery.

Wild OLIVE *of Barbadoes*, [*Bontia.*] This plant is greatly cultivated in the gardens at Barbadoes for making of hedges, than which there is not a more proper plant to thrive in thoſe hot countries, it being an evergreen, and of quick growth. We have been informed that from cuttings (planted in the rainy ſeaſon, when they have immediately taken root) there has been a complete hedge, four or five feet high, in eighteen months. In England it is preſerved in ſtoves. It may be raiſed from ſeeds, which ſhould be ſown on a hot-bed early in the ſpring, that the plants may acquire ſtrength before winter. When the plants are come up, they muſt be tranſplanted out each into a ſeparate ſmall pot, and plunged into a moderate hot-bed of tanners bark, obſerving to ſhade them until they have taken root; after which they muſt have a large ſhare of air in warm weather, and be often refreſhed with water. In winter they muſt be placed in the ſtove, where they ſhould have a moderate degree of warmth, and but little water during that ſeaſon. In ſummer they may be expoſed abroad, in very hot weather, in a ſheltered ſituation. With this management theſe plants will produce flowers and fruit in three years from ſeed. They may alſo be propagated by cuttings, which ſhould be planted in the ſpring before the plants have begun to ſhoot. Theſe muſt be put into pots, and plunged into a moderate hot-bed, obſerving to ſhade them until they have taken root, after which they muſt be treated as hath been directed for the ſeedling plants. Theſe plants being evergreen, and growing in a pyramidical form, make a pretty variety in the ſtove amongſt other exotic plants.

Spurge OLIVE. *See Spurge* LAUREL.

OLITORY. A kitchen garden.

OLLET. Fuel of any kind.

OMY. Mellow, applied to land.

ONE-BERRY, [*Paris.*] Truelove. This plant grows wild in moiſt ſhady woods in divers parts of England, but eſpecially in the northern counties, and it is with great difficulty preſerved in gardens. The only method to procure it, is to take up the plants from the places where they grow wild, preſerving good balls of earth to their roots, and plant them in a ſhady moiſt border, where they may remain undiſturbed, in which ſituation they will live ſome years; but as it is a plant of little beauty, it is rarely preſerved in gardens.

ONE BLADE, [*Smilax.*] There are twelve or thirteen ſpecies, moſtly of a ſhrubby, climbing growth, ſome hardy, and ſome of tender nature, but it is principally ſome of the hardy kinds that are eſteemed for culture in our gardens, having long trailing ſtalks, ſome armed with prickles, others are unarmed, and moſtly climb by means of cirrhi, or claſpers, upon the adjacent trees and buſhes, many feet high, which renders them proper furniture for thickets and wilderneſs quarters, &c. are all exotics from different foreign countries, both in Europe, Aſia, and America; conſiſting of ſeveral ſhrubby, and one herbaceous kind for hardy plantations, and ſome ſhrubby ſorts for the green-houſe, &c.

The hardy kinds are propagated by ſlipping the roots, by layers, and by ſeed.

The tender ſpecies may be propagated by layers, and by dividing the roots. Perform the laying in ſpring on the young ſhoots, which by autumn or ſpring following will be fit for potting off ſeparately: and by roots, theſe being ſlipped in March or April, and the off-ſets potted ſeparately, they will ſoon take root; managing the whole as other woody exotics of the greenhouſe.

ONION, [*Cepa.*] The varieties are, Straſburgh or common oval onion, Spaniſh ſilver-ſkinned large flat onion, Spaniſh red-ſkinned large flat onion, Portugal great oval onion.

Of theſe four the Straſburgh is the beſt for general culture; it is a handſome bulb, generally aſſuming an oval ſhape, is of firm growth, and keeps well for winter ſervice.

The Spaniſh onions are large and flat, the white ſort is of mildeſt flavour. Both the varieties generally turn out very profitable crops, and none excels them for culinary purpoſes, but they rarely keep ſo well after Chriſtmas as the Straſburgh or oval onion.

The Portugal onion is a very large handſome bulb, of ſomewhat oval ſhape, although they rarely attain the ſize here as in Portugal, &c. as is obvious by thoſe imported annually, from that kingdom by the orange merchants. If, however, ſeeds ſaved in Portugal are ſown here, the bulbs will arrive at a much larger ſize than from ſeeds ſaved in England, eſpecially if ſaved two or three years ſucceſſively, which will often be ſo far degenerated, that the bulbs become flat, and not larger than the common onions.

This ſort being very mild, is greatly eſteemed for ſauces, and other uſes in cookery.

All theſe ſorts are propagated by ſeed ſown annually; which, for the general crops, the proper ſeaſon is from about the twentieth of February until the latter end of March, obſerving however, in cold, wet, ſtubborn land, it is proper to defer ſowing entirely until towards the middle of the laſt named month. It is likewiſe to be remarked, that in caſes of omiſſion in ſowing at the times above-mentioned, it may be performed in moiſt rich ſoils, with tolerable ſucceſs, any time before the 15th of April; but remembering that the crops of the February or March ſowing always bulb more freely, and acquire a much larger growth than thoſe ſown later.

The proper ſituation and ſoil for theſe crops ſhould be an open expoſure, and the land moderately light and rich; chuſing however a ſpot of the beſt mellow ground in the garden, with the addition, if poſſible, of a good coat of rotten dung, which ſhould be dug in, one ſpade deep, obſerving to preſerve a level ſurface; and while it is freſh ſtirred, let the ſeed be ſown, which is of particular importance. Do not however ſow it when the ſurface is ſo wet or moiſt as to clog to the feet, or rake.

The proper quantity of ſeed is about an ounce to every rod or pole of ground, but if it is not required to have them thick for culture, two ounces for three rods is ſufficient.

Be particularly careful to procure freſh ſeed; for of that which is more than one year old, not one in fifty will grow.

The ſeed may either be ſown all over the piece or plat of ground, and raked in; or the ground may firſt be divided into beds of four or five feet, allowing foot-wide alleys between; then ſow the ſeed with a regular ſpreading caſt, and immediately tread the ſurface over evenly; then pare the alleys an inch or two deep, and caſt the earth over the beds, and directly proceed to rake them length-ways, keeping an even hand, and trim off all ſtones.

The ſowing them in beds is certainly the moſt eligible practice, when it is deſigned to draw or cull the young onions from time to time, for market or family ſervice, becauſe in ſuch caſes a perſon can ſtand in the alleys without treading at every turn upon the beds, which renders the ſurface hard, to the detriment of the crop, as well as unavoidably trampling upon the plants themſelves; and it is likewiſe very convenient to ſtand in the alleys to weed, thin, or hoe the crop.

It is a common practice in the general culture of onions to ſow them thick, to allow for culling or drawing out the ſuperabundant plants by degrees as they are wanted. We, however,

ever, adviſe to ſow a piece particularly for general culling, exclusive of the main crop, for by a daily thinning out the ſuperfluous plants, there is no avoiding treading upon, diſturbing, and looſening the remaining ones, and the plants thereby become of ſtinted growth.

In fifteen or twenty days after the ſeed is ſown, the plants will appear; and in a month or ſix weeks after that, they will be three or four inches high, and weeds will be numerous, when they ſhould be cleaned from weeds, and thinned to three or four inches diſtance. The weeding and thinning ſhould be began in due time, before the weeds branch and ſpread, which may either be performed by hand or ſmall hoeing; the latter is the moſt expeditious method, as one man may do as much as three, and is alſo the moſt beneficial to the plants, for by ſtirring the ground about them with the hoe, it will greatly facilitate their growth, as will be obvious in a few days after the operation; a ſmall hoe two inches broad is the proper ſize; chuſe dry weather, cut up all weeds, and where the plants ſtand cloſe, cut them out to two or three inches diſtance each way, having regard to leave the ſtrongeſt and moſt promiſing plants.

In a month after run over them again with the hoe, and cut up weeds, and any ſuperfluous plants that eſcaped you the firſt time; after this they will require no farther culture than pulling out ſtraggling weeds.

In July the plants will begin to ſwell greatly at bottom, and in Auguſt the bulbs will be fully grown.

Towards the middle of Auguſt, therefore, examine the crop in general; when the necks ſhrink and fall, and the leaves wither, it may be preſumed the bulbs are arrived at maturity, and are done growing, and ſhould be pulled up, cleaned, dried, and houſed for uſe: this ſhould be done in dry weather; at the ſame time hoe and rake a piece of the ground clean, and as you pull the onions, ſpread them thereon to dry and harden. Here let them lie about a fortnight, turning them every day or two, when, if the weather proves dry, they will be duly prepared for keeping, then take the firſt opportunity to houſe them before wet weather prevails. Let the bulbs be firſt diveſted of all adhering earth, looſe ſkins, and the groſſeſt parts of the leaves and neck, rejecting all infectious and bruiſed ones; and carry them into any dry upper room out of the damp, ſpreading them on the floor not more than a foot thick, but if room to lay them thinner, it will be an advantage.

Being now houſed, the cloſer the room is kept the better, obſerving to turn them over once in three weeks, and clear out ſuch as have any tendency to infection, which they would ſoon communicate to others in their neighbourhood, and it would become general.

In the culture of onions it often happens that, through badneſs of ſeed, many are diſappointed of a crop, by waiting long in expectation of the plants riſing, till it has been too late to ſow again. In this recourſe may be had to tranſplantation from other gardens, either from a neighbouring one, where there are ſuperfluous crops, or may purchaſe a bed, or ſuch part of one as is neceſſary from a market gardener; this ſhould be done in May, or early in June, and if poſſible in moiſt weather: having a ſpot of well-dunged ground prepared, take up the plants with good roots, and plant them in rows ſix inches diſtance, and four inches aſunder in each row, giving directly a hearty watering.

Repeat the waterings occaſionally for a week or fortnight, and the plants will grow freely, and you will not be diſappointed; they will form handſome bulbs.

Onions for pickling are in great requeſt. Thoſe proper for that purpoſe ſhould not be bigger than common round buttons; to procure which in due quantity, ſome ſeed ſhould be ſown late in a ſpot of light poor land; about the middle of April is the proper time: ſow it moderately thick, and the plants need not to be thinned, except they riſe in very thick cluſters. They will bulb in June and July, and be fit to take up in Auguſt.

Right pickling onions ſell well in the markets; thoſe that are cleaned and trimmed ready for the pickling tub fetch from eight to twelve ſhillings per buſhel.

In the ſpring many of the keeping onions

onions will unavoidably grow as they lie in the houſe, theſe may be planted out in rows ſix inches diſtance, and will ſerve to draw up by way of eſcallions.

Of the Autumn or Michaelmas crop.

This crop is generally ſown in Auguſt, and the plants ariſe before Michaelmas, ſtand the winter, and are intended principally for ſpring ſervice, to draw up for young ſallads, &c. and likewiſe, if the Straſburgh or any other variety of the common onion are ſown, they, if permitted to ſtand, will bulb to a tolerable ſize in June, and ſupply the kitchen or market as headed onions till thoſe of the ſpring crop are bulbed.

But as the common onion is liable to be cut off in ſevere winters, it is neceſſary always at the ſame time to ſow ſome beds of Welch onions, which bid defiance to the moſt rigorous froſt.

We obſerved above, that Auguſt is the ſeaſon for ſowing theſe crops; it is to be remarked, that in warm rich land, from the fifteenth to the twenty-fifth is the proper period; but in cold or poor ground, always ſow in the firſt or ſecond week of that month, obſerving to ſow them in beds four feet wide, with twelve-inch alleys between; do not ſpare ſeed, and tread and rake it in as directed in the ſpring crop.

The plants will appear in a fortnight, and with them numerous weeds, to which early attention muſt be had to clear them out by hand before they begin to ſpread, but the plants of this crop are not now to be thinned.

In November and December however, if they ſtand very thick, ſome of the largeſt may be thinned out occaſionally for uſe.

Of ſaving ſeed of this ſpecies

February is the proper time to plant onions for ſeed, though this is often done in October by thoſe that ſave great quantities for ſale.

For this purpoſe make choice of a due quantity of the largeſt and handſomeſt bulbs, rejecting all blemiſhed ones, and ſuch as have already made any effort to grow, and having made choice of a ſpot of ground well expoſed to the ſun, which being dug, proceed to plant the onions; ſtrain a line, and with a hoe or ſpade open three drills, twelve inches aſunder, and ſix deep, place the bulbs therein nine inches diſtance, and rake the earth over them; meaſure off two feet for an alley, and in that manner proceed to the end; the wide ſpaces of two feet is by way of alleys to go between to hoe and clear off weeds, as well as to ſtake and ſupport the ſtalks of the plants when neceſſary.

In June the flower ſtalks will be ſhot their full height, and the flower heads will be formed at top, to ſecure which in erect poſition, drive ſome ſtout ſtakes in the ground along each row, at two yards diſtance, and from ſtake to ſtake faſten double lines of pack-thread, and if theſe are tied together in the intervals between the ſtems of each plant, it will effectually ſecure them.

About the latter end of Auguſt the ſeed will be ripe, which is very diſcoverable by the capſules opening, and black colour of the ſeed; cut the heads in a dry day, and ſpread them upon cloths in the ſun, but remove them under cover at night; and in a week or fortnight beat or rub out the ſeed; clean it out from the rubbiſh, and put it up in bags for uſe.

Good onion ſeed is a very material article to be attended to: it is to be remarked that this ſeed never germinates freely after the firſt year, but notwithſtanding this, ſeeds-men are very apt to mix more than half old ſeed with their new, to the great loſs and diſappointment of many; to try its goodneſs, ſome, before they venture their general crop, ſow a little in a pot, and place it in a moderate hot-bed, or near a fire: but the moſt expeditious method is this; tye about a thimble-full of the ſeed looſely in a piece of linen rag, and put it into a veſſel of boiling water, ſuſpended by a thread; in ten or fifteen miutes pull it out, and if the ſeeds are good, they will in that ſhort ſpace of time be germinated or chipped, perhaps a quarter of an inch in length.

Leek, & other ſeed of ſimilar nature, may be tried by the ſame experiment.

Welch ONIONS. A ſort of onions propagated by gardeners for the uſe of the table in ſpring; they never make any bulb, and are therefore only to be eaten green with ſallads.

They are propagated by ſowing their ſeeds towards the end of July, in beds of a dry but rich ſoil; and in three weeks

weeks after ſowing they will appear above ground; when they muſt be kept very free from weeds. About October all their leaves die away, which has occaſioned ſome to think all the plantation loſt, and to dig up the ground for ſome other uſe; but if they are ſuffered to ſtand, they will ſhoot up again very ſtrong in January, and from that time will grow very vigorouſly, reſiſt all weathers, and be fit to draw in March, when they will be extemely green and fine. They are much ſtronger than any other ſort of onions, and have much of the taſte of garlic.

See ONION. *See* SQUILL.

OPIUM. In the materia medica, is an inſpiſſated juice, partly of the reſinous, and partly of the gummy kind, brought to us in cakes from eight ounces to a pound weight. It is very heavy, of a denſe texture, and not perfectly dry; but in general, eaſily receives an impreſſion from the finger: its colour is a browniſh yellow, ſo very dark and duſky that at firſt ſight it appears black: it has a dead and faint ſmell, and its taſte is very bitter and acrid. It is to be choſen moderately firm, and not too ſoft; its ſmell and taſte ſhould be very ſtrong, and care is to be taken that there is no dirty or ſtony matter in it.

Opium is the juice of the papaver album, or white poppy, with which the fields of Aſia Minor are in many places ſown, as ours are with corn. When the heads are near ripening, they wound them with an inſtrument that has five edges, which on being ſtuck into the head makes at once five long cuts in it; and from theſe wounds the opium flows, and is next day taken off by a perſon who goes round the field, and put up in a veſſel, which he carries faſtened to his girdle: at the ſame time that this opium is collected, the oppoſite ſide of the poppy head is wounded, and the opium collected from it the next day. They diſtinguiſh however the produce of the firſt wounds from that of the ſucceeding ones, for the firſt juice afforded by the plant is greatly ſuperior to what is obtained afterwards. After they have collected the opium, they moiſten it with a ſmall quantity of water or honey, and work it a long time upon a flat, hard, and ſmooth board, with a thick and ſtrong inſtrument of the ſame wood, till it becomes of the conſiſtence of pitch; and then work it up with their hands, and form it into cakes or rolls for ſale.

Opium at preſent is in great eſteem, and is of one of the moſt valuable of all the ſimple medicines: applied externally it is emollient, relaxing and diſcutient, and greatly promotes ſuppuration; if long kept upon the ſkin it takes off the hair, and always occaſions an itching in it; ſometimes it exulcerates it, and raiſes little bliſters if applied to a tender part. Sometimes, on external application, it allays pain, and even occaſions ſleep: but it muſt by no means be applied to the head, eſpecially to the ſutures of the ſkull, for it has been known to have the moſt terrible effects in this application, and even to bring on death itſelf.

Opium taken internally, removes melancholy, eaſes pain and diſpoſes to ſleep; in many caſes removes hæmorrhages, provokes ſweating, and is a provocation to venery; and in general has a greater effect on women and children than on men. A moderate doſe is commonly under a grain, though according to the circumſtances two grains, or even three may be within the limits of this denomination; but cuſtom will make people bear a dram or more, tho' in this caſe nature is vitiated, and nothing is to be hence judged in regard to others. If given diſſolved, it operates in half an hour; if in a ſolid form, as in pills, or the like, it is ſometimes an hour and a half. Its firſt effect, in this caſe, is the making the patient cheerful, as if he had drank moderately of wine, and at the ſame time bold and above the fear of danger; for which reaſon the Turks always take it when they are going to battle. A very immoderate doſe brings on a ſort of drunkenneſs, much like that occaſioned by an immoderate quantity of ſtrong liquors; cheerfulneſs and loud laughter at firſt, then a relaxation of limbs, a loſs of memory, and lightheadedneſs; then vertigoes, dimneſs of the eyes, with a laxity of the cornea and a dilatation of the pupils, a flowneſs of the pulſe, redneſs of the face, relaxation of the under jaws, ſwelling of the lips, difficulty

ficulty of breathing, painful erection of the penis, convulsions, cold sweats, and, finally, death. Those who escape are usually relieved by a great number of stools, or profuse sweats. People who have gradually accustomed themselves to an immoderate use of opium, are subject to relaxations and weakness of all the parts of the body: they are apt to be faint, idle, and thoughtless; and are generally in a stupid and uncomfortable state, except just after they have taken a fresh dose; in short, they lose their appetite, and grow old before their time.

Prepared opium, commonly called extract of opium, is made by dissolving opium in a sufficient quantity of water with a gentle heat; then straining the solution from the fæces, and evaporating it to the consistence of honey. Tincture of opium, or liquid laudanum, otherwise called the thebaic tincture, is made as follows: take of prepared opium two ounces; of cinnamon and cloves, each one drachm; of white-wine, one pint: infuse them a week without heat, and then filtre it through paper. Quincy observes of this preparation, that the addition of the spices are of no use.

OPODELDOC. A liniment in much esteem for sprains, &c. it is thus made:

Take spirit of rosemary one pint,
Soft soap three ounces,
Camphor one ounce.

The College of London direct hard soap, but soft soap is most generally used.

ORACH, [*Atriplex.*] Arrach. The species are, 1. Pale green, or white garden orach. 2. Broad-leaved, or shrubby orach. 3. Shrubby sea orach. There are several other species, some of which grow naturally in England, but as they are plants of no beauty, they are rarely admitted into gardens.

The first of these plants was formerly cultivated in the kitchen-garden as a culinary herb, being used as spinach, and is now by some persons preferred to it, though in general it is not esteemed amongst the English; but the French at present cultivate this plant for use, as the people in the northern parts of England also do.

The second sort was formerly cultivated in gardens as a shrub, and by some persons were formed into hedges, and constantly sheared to keep thick; but this plant is by no means fit for such purposes on many accounts, for it grows too vigorous; the shoots in one month at the growing season of the year will be two feet long, provided they have a good soil, so that a hedge of this plant cannot be kept in tolerable order, nor will it ever form a thick hedge. But a worse inconvenience attends this plant, for in very hard winters it is often destroyed.

It may be propagated by cuttings, which may be planted in any of the summer months on a shady border; they will soon take root, and be fit to transplant the Michaelmas following, when they should be planted where they are to remain.

The third sort grows wild in divers parts of England, on the sea-side, from whence the plants may be procured; or it may be propagated by cuttings in the same manner as the former sort. This is a low under shrub, seldom rising above two feet and a half, or at most three feet high, but becomes very bushy. This may have a place amongst other low shrubs, and if planted on a poor gravelly soil, will abide several years, and make pretty diversity.

ORANGE TREE, [*Aurantium.*] The species are, the Seville Orange, the China Orange, the Shaddock, or Pumplemoes, the Horned Orange, the Hermaphrodite Orange, the Willow Leaved, and the Dwarf or Nutmeg Orange.

There are many more less material varieties than are here noticed, in the countries where they grow in the open ground; and the varieties, like our apples and pears, may be multiplied by seed without end: but, like other fruit so raised, it is probable there may not be one in a hundred worth notice, so that the approved sorts can only be continued with certainty by budding.

The flowers of all the species and varieties are formed each of five spreading petals, appearing here principally in May or June, and the fruit continue setting in June and July, and ripen the year following.

All the sorts are elegant evergreens of the tree kind, obtaining in England from about five to eight or ten feet stature, forming full and handsome heads, closely garnished with beautiful large leaves the year round, and a pro-

fuſion of ſweet flowers, in ſpring and early in ſummer, which, even in this country, are often ſucceeded by abundance of fruit, ſometimes arriving to tolerable perfection; but the chief merit of theſe trees in England is for ornament, which conſiſts not only in their beautiful foliage, but alſo in the flowers and fruit, and have this peculiar merit, as to exhibit bloſſoms, green fruit in different ſtages of growth, and full-grown ripe yellow fruit, all at the ſame time; which, together with their large ſhining green leaves, effect one of the moſt beautiful contraſts of our gardens, which renders all the ſorts very deſirable furniture for the green-houſe collection. Oranges and lemons are generally more fruitful in England than the citron, and the Seville orange moſt of all, which is the only ſort of orange to be depended on for any conſiderable quantity of flowers and fruit; this tree being hardieſt, retains its fruit in winter better than moſt of the other varieties.

Theſe trees are all natives originally of India, but have been long retained in our gardens as green-houſe plants; and in the ſouthern parts of Europe, as Portugal, Spain, and Italy, they grow in the open ground like our apple and pear trees, and from which countries vaſt quantities of the fruit are imported hither annually; but in England the trees muſt always be continued in pots or tubs, to be houſed in winter.

They all ſucceed in the open air from the beginning of June unto the middle or latter end of October, and the reſt of the year muſt have the ſhelter of a green-houſe, and they will proſper in any good garden mould.

They are propagated by ſeed, budding, and inarching. By ſeed, i. e. the kernels of the fruit: this method of raiſing theſe trees is rarely practiſed in England, except for ſtocks, on which to bud the different kinds; for although raiſing the trees entirely from ſeed, without budding, is the way to gain new varieties, yet out of numbers ſo raiſed, it is probable not a tree of them may produce fruit that poſſeſſes any good property, but will be ſmall, crablike, and intolerably ſour and harſh: but when any new valuable variety is by this means accidentally obtained, it is continued and multiplied by budding it upon ſtocks raiſed from the kernels of any of the ſorts; by which practice all the above deſcribed varieties are annually increaſed in our gardens. The method of raiſing them entirely from ſeeds, except for ſtocks, is both tedious and uncertain; therefore in this country it is ſcarce worth practiſing, unleſs a few merely for curioſity.

The raiſing them, however, from the kernel, either to form trees for new varieties, or for ſtocks to bud upon, is in this country performed effectually and expeditiouſly by the aid of a hot-bed, and by this means ſtocks may be obtained of due ſize for budding, in two years. The following is the method of raiſing them:—

Early in ſpring procure ſome kernels which may be had plentifully from rotten fruits, or others that are perfectly ripened, obſerving, that for ſtocks, the citron, lemon, and Seville orange, as being the freeſt ſhooters, are to be preferred, though the citron is the ſtrongeſt ſhooter of the three: ſow the kernels in March, in pots of rich light earth half an inch deep, and plunge them in a hot-bed of dung or tan, under frame and glaſſes, giving them air, and frequent ſprinklings of water. In two or three weeks the plants will come up, and in ſix weeks or two months more, they will be advanced four or five inches in height; obſerving, in the middle or latter end of June, to harden them to the full air, in which let them remain till October, then move them into the green-houſe to ſtand till ſpring. In March or April, proceed to plant them ſingly in ſmall pots, being careful to ſhake them out of the ſeed-pot with their roots entire, and having half filled the other pots with light, rich, loamy compoſt, place one plant in each pot, filling it up over the roots with the ſame ſort of earth, and let them be directly watered, repeating it occaſionally till they are freſh rooted; afterwards treat them as other woody exotics of the green-houſe, and in a year or two, the largeſt of thoſe deſigned for ſtocks will be fit to bud.

But, to have ſtocks as forward and fine as poſſible for budding, as ſoon as they are potted out as above, plunge them directly in a hot-bed, under a frame

frame and glaſſes, about three or four months, which will draw them up in height with handſome ſtems.

A bark-bed would be the moſt eligible, made either in a glaſs pit, or to be covered with a deep frame and lights; ſo plunging the pots to their rims in the bed, giving occaſional ſhade in the middle of hot ſunny days, and freſh air daily by tilting one end of the lights more or leſs, as you ſhall judge expedient: likewiſe refreſh them frequently with water, and by the middle or end of July the plants will be advanced fifteen or eighteen inches, or near two feet high, obſerving then to harden them by degrees to the full air for the remainder of the ſummer; and by being thus forwarded, thoſe deſigned for ſtocks will be in excellent order for budding the year following.

But theſe ſeedlings may ſtill be more forwarded, and a year or two's growth may be gained by forcing them, as above, the firſt ſeaſon. This is effected by pricking out the ſeedlings the firſt year they come up, when two or three inches high, in ſmall pots, as above, to be plunged either in a bark-bed, or even in a dung hot-bed, covered with old tan eight or ten inches deep for the reception of the pots. The plants are then to be potted ſingly, and plunged in the hot-bed, and by the middle or end of July, they will have advanced to twelve or fifteen inches, or perhaps to a foot and a half, or near two feet in height; they muſt then be gradually hardened to the full air, by raiſing the lights more and more every day, leaving them alſo up on nights, and at laſt take them quite off in a cloudy calm day. Let the plants remain fully expoſed till October, then move them into the green-houſe for the winter, and many of them will be in due order to receive the buds the next Auguſt; and the following is the method:

The operation of budding is performed in Auguſt upon ſtocks of their own kinds, for all the ſpecies and varieties of this genus take freely upon one another, and the budding or inoculation is performed in the common way.

As to the buds for budding them, obſerve to procure cuttings only from bearing free-ſhooting trees, of the ſorts you would encreaſe; young ſhoots, that are round and plump, muſt be choſen, and from theſe take the buds in the uſual manner, being careful to inſert them in a ſmooth part of the ſtock, at about ſix to ten or fifteen inches from the bottom, one bud in each ſtock, tying them with a ligature of baſs.

As ſoon as the budding is finiſhed, it is proper to place the plants in their pots in the green-houſe, or in a glaſs-caſe, &c. to defend the buds from wet and drying winds, turning the budded part from the ſun: or where there is the convenience of a ſpare bark-pit, where the heat of the bark is almoſt exhauſted, the pots may be plunged therein two or three weeks, and it will more effectually promote the union of the buds; obſerving, in either department, to admit air freely, by opening the front glaſſes, and allowing a ſlight ſhade of mats in the middle of ſcorching ſunny days: the pots ſhould alſo be ſupplied with water every day or two during the hot weather. In three or four weeks the buds will be united with the ſtocks, when it is proper to looſen the bandage of each bud, that they may have room to ſwell; obſerving, however, that the buds will all remain dormant till ſpring.

After this there is nothing more required this year but due waterings, only obſerving, that in caſe of great rains, it will be proper to retain the plants in the green-houſe for the remainder of the ſummer, and until next ſpring.

In March following, the heads of all the ſtocks muſt be cut off ſlanting cloſe behind the inſertion of the bud; after this operation the buds will ſoon begin to ſpring, and produce each one ſhoot, which probably will obtain from about five or ſix, to eight or ten inches in length the ſame year. It is proper to obſerve, that if the ſtocks could have the aid of a bark-bed, there will be a chance of having the buds ſhoot a foot and half, or more, by the end of ſummer; therefore where there is the convenience of a bark pit, or glaſs-caſe, or any deep frame, that can be placed on a bark-bed, &c. we ſhould adviſe by all means to make uſe of ſuch conveniencies for forwarding the firſt ſhoot of the buds; ſo that as ſoon as the ſtocks are headed, as above directed, plunge the pots in the hot-bed, and let them enjoy the benefit of air and wa-

ter, in proportion to the temperature of the bed and weather; likewiſe occaſional ſhade when the ſun is very powerful. Here they may be continued, with the above care, till the end of July, when ſome of the ſtrongeſt ſhooters will be advanced near two feet high; and it is then proper to begin to inure them by degrees to the full air, to harden them againſt winter, that they may be able to live during that ſeaſon in the green-houſe, to which they muſt be removed in October.

When it is however deſigned to propagate by inarching, ſtocks muſt be raiſed from ſeed, as before directed, which, when of due ſize, are to be placed in their pots, upon a ſort of ſtage, or ſome erection convenient to the head of the trees you intend to inarch from, obſerving to fix upon ſome convenient young ſhoots, nearly the ſize of the ſtocks, for the purpoſe of inarching; theſe are to be inarched in the ſtocks, as they grow on the trees, in April or May, one in each ſtock, and by the end of Auguſt following they will be united to the ſtock, and may be ſeparated from the parent tree.

But this method of propagating theſe trees, is rather practiſed by way of curioſity, to raiſe a few trees to a bearing ſtate in haſte, becauſe, by inarching a young bearing branch, furniſhed with fruit, into any of their own ſtocks, in April or May, it will frequently be united by the following Auguſt, and the branch ſo inarched may be ſeparated from its parent plant, and, being firmly attached to the ſtock, it then commences a new tree, bearing fruit, raiſed in the ſhort ſpace of four or five months.

By the ſame rule you may inarch an orange into the branch of a citron or lemon, or all three upon the ſame tree, for the ſake of variety.

But trees raiſed by this method never grow ſo large nor handſome as thoſe raiſed by budding.

The flowers are highly odoriferous, and have been for ſome time paſt of great eſteem as a perfume: their taſte is ſomewhat warm, accompanied with a degree of bitterneſs. They yield their flavour by infuſion, to rectified ſpirit, and in diſtillation both to ſpirit and water: the bitter matter is diſſolved by water, and, on evaporating the decoction, remains entire in the extract. The diſtilled water was formerly kept in the ſhops, but on account of the ſcarcity of the flowers is now laid aſide: it is called by foreign writers *aqua nephæ*. An oil diſtilled from theſe flowers is brought from Italy under the name of *oleum* or *eſſentia neroli*.

The outer yellow rind of the fruit is a grateful aromatic bitter, and, in cold phlegmatic conſtitutions, proves an excellent ſtomachic and carminative, promoting appetite, warming the habit, and ſtrengthening the tone of the viſcera. Orange peel appears to be very conſiderably warmer than that of lemons, and to abound more with eſſential oil: to this circumſtance therefore due regard ought to be had in the uſe of theſe medicines. The flavour of the firſt is likewiſe ſuppoſed to be leſs periſhable than that of the other, hence the College employ orange peel in the ſpirituous bitter tincture, which is deſigned for keeping, whilſt in the bitter watery infuſion, lemon peel is preferred. A ſyrup and two diſtilled waters are for the ſame reaſon prepared from the rind of oranges in preference to that of lemons.

The juice of oranges is a grateful acid liquor, of conſiderable uſe in febrile or inflammatory diſtempers, for allaying heat, abating exorbitant commotions of the blood, quenching thirſt, and promoting the ſalutary excretions; it is likewiſe of great uſe in ſcurvies, eſpecially when given in conjunction with the *cochlearia*, *naſturtium*, or other acrid antiſcorbutics, as in the *ſucci ſcorbutici* of the ſhops.

ORANGE-MINT, [*Mentha Rubra.*] A ſpecies of mint ſmelling like an orange.

Mock ORANGE. See *Mock* ORANGE.

ORCHARD. A garden department, conſigned entirely to the growth of ſtandard fruit trees, for furniſhing a large ſupply of the moſt uſeful kinds of fruit.

In the orchard you may have as ſtandards all ſorts of apple trees, moſt ſorts of pears and plumbs, and all ſorts of cherries; which four ſpecies are the capital orchard fruits: each of which compriſe numerous valuable varieties; but to have a compleat orchard, you may alſo have quinces, medlars, mulberries, ſervice-trees, filberts, Spaniſh nuts, barberries; likewiſe walnuts and cheſnuts, which two latter are particularly applicable for the boundaries of orchards,

orchards, to ſcreen the other trees from the inſults of impetuous winds and cold blaſts. All theſe trees ſhould be arranged in rows from twenty to thirty feet diſtance.

But ſometimes orchards conſiſt entirely of apple-trees, particularly in the cyder-making countries, where they are cultivated in very great quantities in large fields, and in hedge-rows, for the fruit to make cyder for public ſupply.

And ſometimes whole orchards of very conſiderable extent are entirely of cherry-trees; but in this caſe, it is when the fruit is deſigned for ſale in ſome great city, as London, &c. for the ſupply of which city, great numbers of cherry-orchards are in ſome of the adjacent counties, but more particularly in Kent, which is famous for very extenſive cherry-orchards; many of which are entirely of that ſort called Kentiſh cherry, as being generally a great bearer; others are ſtored with all the principal ſorts of cultivated cherries, from the earlieſt to the lateſt kinds.

A general orchard, however, compoſed of all the before-mentioned fruit-trees, ſhould conſiſt of a double portion of apple-trees or more, becauſe they are conſiderably the moſt uſeful fruit, and may be continued for uſe the year round.

The utility of a general orchard, both for private uſe and for profit, ſtored with various ſorts of fruit-trees, muſt be very great, as well as afford infinite pleaſure from the delightful appearance it makes from early ſpring till late in autumn: in ſpring the various trees in bloſſom are highly ornamental; in ſummer, the pleaſure is heightened by obſerving the various fruits advancing to perfection; and as the ſeaſon advances, the mature growth of the various ſorts arriving to perfection in regular ſucceſſion from May or June until the end of October, muſt afford exceeding delight, as well as great profit.

As to the proper extent of ground for an orchard, this muſt be proportioned, in ſome meaſure, to the extent of land you have to work on, and the quantity of fruit required either for private uſe, or for public ſupply: ſo that an orchard may be from half an acre to twenty or more in extent.

With reſpect to the ſituation and aſpect for an orchard, we may obſerve very thriving orchards both in low and high ſituations, and on declivities and plains, in various aſpects or expoſures, provided the natural ſoil is good. We ſhould, however, avoid very low damp ſituations as much as the nature of the place will admit; for in very wet ſoils no fruit-trees will proſper, nor the fruit be fine: but a moderately low ſituation, free from copious wet, may be more eligible than an elevated ground, as being leſs expoſed to tempeſtuous winds; though a ſituation having a ſmall declivity is very deſirable, eſpecially if its aſpect incline towards the eaſt, ſouth-eaſt, or ſoutherly, which are rather more eligible than a weſterly aſpect; but a north aſpect is the worſt of all for an orchard, unleſs particularly compenſated by the peculiar temperament or good quality of the ſoil. We would remark, for the advantage of thoſe that are not accommodated with choice of ſituation and aſpect, that they need not be under any great anxiety, if the ſoil is but ſuitable; only obſerving, if poſſible, to abandon very low damp ſituations, for the reaſon before given them.

As for ſoil, any common field or paſture that produces good crops of corn, graſs, or kitchen garden vegetables, is ſuitable for an orchard; if it ſhould prove of a loamy nature, it will be a particular advantage: any ſoil, however, of a good quality, not too light and dry, or too heavy, ſtubborn, or wet, but of a medium nature, of a ſoft pliant temperature, not leſs than one ſpade deep of good ſtaple, will be proper for this purpoſe.

Where, however, the ſoil is naturally defective, the defects muſt be rectified as well as poſſible, by the application of proper manures and compoſts, and applied either to the whole ground, if but of moderate extent, or to the places where each tree is to ſtand, for a ſpace of eight or ten feet circumference, working it up with the natural ſoil of the place.

This application, in extenſive orchards, would be a very chargeable operation; therefore thoſe who are at liberty to chuſe, ſhould have particular regard to the fixing upon a proper ſpot, where but little or no foreign aid is requiſite.

The preparation of the ground for the reception of the trees, is by trenching,

ing, or if for very conſiderable orchards, by deep ploughing; but trench-digging, one or two ſpades, as the ſoil will admit, is the moſt eligible, either wholly, or only for the preſent, in the places where the lines of trees are to ſtand, a ſpace of ſix or eight feet wide, all the way in each row, eſpecially if it be graſs-ground, and intended to be kept in ſward; or if any under-crops are deſigned to be raiſed, the ground may be wholly trenched at firſt; but as to this you may ſuit your convenience, obſerving in either caſe to trench the ground in the uſual way to the depth of the natural ſoil; and if in graſs, turn the ſward clean to the bottom of each trench, which when rotted, will prove an excellent manure.

In planting orchards, however, on graſs-ground, ſome only dig pits for each tree, capacious enough for the reception of the roots, looſening the bottom well, without the labour of digging any other part of the ground: where the ground, however, is trenched either wholly, or ſome conſiderable width along the place of each row of trees, it will conſequently prove of greater advantage in promoting their free growth.

The ground muſt be fenced ſecurely againſt cattle, &c. either with a good ditch and hedge, or with a paling fence, as may be moſt convenient.

The beſt ſeaſon for planting all the ſorts of fruit trees is autumn, ſoon after the fall of the leaf, from about the latter end of October until December; or it may be performed any time in open weather from October until March.

All the ſorts of fruit trees proper for this department, if not furniſhed with them in your own nurſery, may be had very reaſonable at all the public nurſery-grounds; obſerving to chuſe them principally full ſtandards, with ſtrait clean ſtems, ſix feet high, eſpecially the apples, pears, plumbs, cherries, and other tree kinds, each with a branchy well-formed head, of from two or three to four or five years growth; and let ſeveral varieties of each particular ſpecies be choſen, that ripen their fruit at different times, from the earlieſt to the lateſt, according to the nature of the different ſorts, that there may be a ſufficient ſupply of every ſort regularly during their proper ſeaſon; and of apples and pears in particular, chuſe a much greater quantity of the autumnal and late ripening kinds, than the early ſorts; but the moſt of all of apples: for the ſummer-ripening fruit is but of ſhort duration, being only proper for temporary ſervice. The later ripening kinds keep ſound ſome conſiderable time for autumnal uſe; and the lateſt ſorts that ripen in October continue in perfection for various uſes all winter, and ſeveral ſorts until the ſeaſon of apples come again.

Having made choice of the proper ſorts, and marked them, let them be taken up with the utmoſt care, ſo as to preſerve all their roots as entire as poſſible; and when taken up, prune off any broken or bruiſed parts of the roots, and juſt tip the ends of the principal roots in general with the knife, on the under ſide, with a kind of ſlope outward.

If the trees have been already headed, or ſo trained as to have branched out into regular ſhoots to form each a proper head, they muſt be planted with the ſaid heads entire, only retrenching or ſhortening any irregular or ill-placed ſhoots that take an aukward direction, or run longer than the reſt.

The arrangement of the trees in the orchard muſt be in rows, each kind ſeparate, at diſtances according to the nature of growth of the different ſorts; but for the larger growing kinds, ſuch as apples, pears, plumbs, cherries, &c. they ſhould ſtand from twenty-five to thirty or forty feet every way aſunder, though twenty-five or thirty feet at moſt is a reaſonable diſtance for all theſe kinds.

Each ſpecies and its varieties ſhould generally be in rows by themſelves, the better to ſuit their reſpective modes of growth: though for variety you may have ſome rows of apples and pears ranged alternately; likewiſe plumbs and cherries; and towards the boundaries may have ranges of leſſer growth, as quinces, medlars, filberts, &c. and the outer row of all may be walnut-trees, and ſome cheſnuts, ſet pretty cloſe, to defend the other trees from violent winds.

Proceed to ſtake out the ground according to the above diſtances, for making the holes for the reception of the trees; which if made to range every way, will have a very agreeable effect, and

and admit the currency of air, and the influence of the ſun, more effectually.

In planting very extenſive orchards, ſome divide the ground into large ſquares or quarters of different dimenſions, with intervals of fifty feet wide between, ſerving both as walks, and for admitting the air. In different quarters plant different ſorts of fruit, as apples in one, pears in another, and plumbs and cherries in others, &c. and thus it may be repeated to as many quarters, for each ſpecies and its varieties, as may be convenient.

A wide hole muſt be dug for each tree, capacious enough to receive all the roots freely every way without touching the ſides. When the holes are ready, proceed to planting, one tree to each hole, a perſon holding the ſtem erect, whilſt another trims in the earth, previouſly breaking it ſmall, and caſt it in equally about all the roots, frequently ſhaking the tree to cauſe the mould to ſettle in cloſe about all the ſmaller roots and fibres, and ſo as to raiſe the tree gradually up, that the crown of the roots may be but two or three inches below the general ſurface; and when the hole is filled up, tread it gently, firſt round the outſide, then near the ſtem of the tree, forming the ſurface a little hollow: and then if on the top of all is laid ſome inverted turf to the width of the holes, forming it with a ſort of circular bank, three or four inches high, it will ſupport the tree, and guard the roots from drying winds and the ſummer's drought: obſerving that each tree ſtands perfectly upright, and that they range exactly in their proper rows.

If the orchard is much expoſed to the winds, it may be proper to ſtake the new-planted trees to ſupport them in their proper poſition, and ſecure them from being rocked to and fro by the wind, which would greatly retard their rooting afreſh; placing one or two ſtrong tall ſtakes to each tree; but the moſt effectual method is to have three ſtakes to each, placed in a triangle, meeting at top near the head of the tree, wrapping a hay-band round that part of the ſtem, to prevent its being barked by the ſtakes or tying; then tie the ſtakes at top cloſe to the tree, with ſome proper bandage, bringing it cloſe about the ſtem and ſtakes together, over the hay-wrapping, in a proper manner to ſecure the tree firmly in an erect poſture.

The ground of the orchard, between the rows of trees, is very commonly laid down in graſs, as being the moſt convenient for admitting of coming readily at the trees at all times to gather the fruit: but if thought proper, it may be employed for ſome years either wholly, or in part, for the produce of kitchen vegetables, or for the growth of corn, turnips, potatoes, &c. being careful in digging or ploughing the ground for the reception of theſe crops, not to go too near to diſturb the roots of the trees; likewiſe not have any ſtrong-growing plants within three feet of each ſide of the rows of trees: however, after the trees are advanced in growth, and begin to bear any thing conſiderably, it may be more eligible to lay the ground down intirely in graſs, as it will be then more in character of an orchard, and be more convenient for gathering the fruit, and doing any neceſſary work to the trees; but in any of theſe ways, every one may ſuit their inclination or convenience.

If, however, it is laid down in graſs, no cattle ſhould be turned in to graze at large, unleſs the ſtems of each tree be previouſly well ſecured with poſts and railing, and wattled with thornbuſhes, eſpecially in young orchards, otherwiſe they will bark the trees, to their very great injury; nor ſhould large cattle be turned into orchards, where the branches of the trees are low and within their reach.

With regard to the general culture of orchard fruit-trees, obſerve, that as being ſtandards, their heads ſhould generally be permitted to branch out nearly in their own natural manner, with the branches at full length, without ſhortening, only on particular occaſions, and they will gradually form themſelves into large branchy heads, and all the branches ſoon aſſume a bearing ſtate; very little pruning of any ſort being required to ſtandard fruit-trees, except in particular caſes, as above hinted, of ſuperfluous or very irregular growths: as for example, all ſuckers ariſing from the root, muſt conſtantly be taken off cloſe; likewiſe diveſt the ſtems of all ſide-branches coming out below the head; and all luxuriant ſhoots ariſing in the heart or middle of the tree, or in any part where they

they appear too much crouded, ſhould be pruned off cloſe. If any particular branch of the head ſhould become of long ſtraggling growth, extending beyond all the reſt, it may be ſhortened as you ſhall ſee proper, down to ſome young ſhoot, or lower branch it ſupports, that is of a regular growth, or intirely retrenched as it may ſeem proper to keep up ſome uniformity in the head; and if the head in general become at any time over-crouded with branches, thin out the worſt and moſt irregular growers of the ſuperfluity. All dead wood and cankered parts ſhould alſo be cut off to the live wood.

But remarking, that except in the above caſes, the branches in general of ſtandard fruit trees, in every ſtage of growth, ſhould be ſuffered to ſhoot forth, both in length and branch, laterally in their own way; for as moſt of the ſorts firſt form their fruit-buds, or ſpurs, near the extremity of the branches or ſhoots, if pruning their ends were practiſed, it would not only be cutting off the parts where the fruit would have been produced, but would force out a number of lateral uſeleſs ſhoots, and crowd the tree with ſuperfluous or unneceſſary wood, and greatly retard the branches from forming the above fruit-ſpurs or buds for bearing; and unleſs theſe are formed in plenty; none of the principal tree kinds can ever produce any tolerable crops of fruit; but the trees being ſuffered to take their natural growth, according to the above rules, all the branches and ſhoots will gradually form fruit-ſpurs towards their extreme parts, at almoſt every eye or bud.

By the above hints it is obvious that ſtandard fruit-trees require but very little culture in reſpect to pruning; and the leſs they are pruned, except in the before-mentioned caſes, the better they will bear.

Beſides, to attempt at any regular pruning of orchard or other ſtandard fruit-trees, would prove a very tedious as well as unneceſſary work.

When neceſſary, however, to prune any of theſe trees occaſionally in the above caſes, obſerve that the proper ſeaſon for that work is any time from the fall of the leaf until March. Likewiſe obſerve in performing that operation, that ſuch branches as require retrenching ſhould be cut off quite cloſe either to their origin, if neceſſary, or cloſe to any more convenient branch it may ſupport, not leaving any ſtump, and make the cut as even and ſmooth as poſſible.

Orchard-trees are ſometimes greatly infeſted with moſs growing all over their branches, but more particularly thoſe trees which are ſituated in very damp ſoils; alſo often in old orchards where the trees ſtand ſo cloſe as to croud one another ſo conſiderably as to exclude the free air: in which caſe of moſſineſs, the trees commonly aſſume a ſtunted unkindly growth, producing but indifferent crops, and the fruit often ſmall and ill-flavoured. The only remedy for this diſaſter, is, to thin out ſome of the branches where thickeſt, to admit the ſun and air more freely, and ſcrape the moſs off from the remainder, with an inſtrument directed below; but where the trees thus infeſted ſtand very cloſe to one another, ſome of them ſhould be cut down to admit a larger portion of air, and the ſun's heat and light; and for the ſame reaſon thin the branches of the remaining trees; then clear the branches in general from the groſſeſt of the moſs; for which purpoſe you ſhould be provided with ſome iron ſcrapers hollowed on the edge, and of three different ſizes to ſuit the different branches, having the edges a little blunted; and with theſe tools ſcrape off the moſs from all the principal branches at leaſt, and of as many of the ſmaller ones as your time will permit, for it is tedious work where there are many trees: after this, if the ground of the orchard, either wholly or but ten or twelve feet width along each row of trees, be dug or deeply ploughed, it will give new vigour to the roots, and which together with the thinning of the trees to admit the ſun and air freely, and the principal branches being diveſted of the moſs, you will find them ſhoot at top with freſh vigour, and the quantity, ſize, and quality of the fruit be greatly augmented in a year or two.

ORCHARD-GRASS. The name of a ſmall, coarſe, but very ſweet graſs. It is of very quick growth, and may poſſibly hereafter be cultivated to advantage.

ORE-WEED. A general name for weeds growing at the bottom of the ſea,

sea, and also on the muddy and rocky parts of the shore.

Sea-weeds are so beneficial a manure, that farmers ought not to grudge the expence of carrying them a few miles. In Devonshire, Cornwall, and other maritime parts of England, these weeds are laid in heaps till they are rotten, and then spread upon the land, about a load to three rods: but this lasts only one year, unless sand, or a stiff earth, according to the quality of the soil intended to be improved, be laid on or mixed with them; and then they become a lasting manure. In some places, these weeds are gathered in heaps, and burnt as soon as they are dry; after which about a bushel of their ashes is laid on upon three rods of ground. But these, like all other ashes, should be mixed with sand, or stiff earth, if you will have the land last good: otherwise they are only an improvement for a year. These ashes are particularly good for grass grounds over-run with moss. Loose sandy soils are likewise peculiarly benefitted by this weed: but, being a sub-marine plant, the wind and sun soon exhale its moisture; so that the more speedily it is taken from the shore, where storms often throw it up in great quantities, the better it is. When spread on the ground, and afterwards covered over, it soon dissolves into a salt oily slime, proper to fertilize and bind light soils. This is the most approved way of applying it: though some lay it naked, and fresh from the sea, upon their barley lands, towards the end of March and beginning of April, and have a good crop of corn: but such quantities of rank weeds are apt to shoot up afterwards, that no wholesome plant is to be expected that year.

ORCHIS, *See* DOGSTONES.

ORIGANY, [*Origanum.*] Wild Thyme, or Wild Majoram. This is met with upon dry chalky hills, and in gravelly soils, in several parts of England. It has an agreeable smell, and a pungent taste, warmer than that of the garden marjoram, and much resembling thyme, which it seems to agree with in virtue. An essential oil distilled from it, is kept in the shops.

ORPINE, [*Telephium.*] This is a very thick-leaved juicy plant, not unlike the houseleeks. It has a mucilaginous roughest taste, and hence is recommended as emollient and astringent, but has never been much regarded in practice.

Bastard ORPINE. See BASTARD ORPINE.

ORRIS, [*Iris.*] The roots of this plant, when recent, have a bitter, but acrid, nauseous taste, and taken into the body proves strongly cathartic; and hence the juice is recommended in dropsies, in the dose of three or four scruples. By drying they lose this quality, yet still retain a somewhat pungent, bitterish taste: their smell in this state is of the aromatic kind; those produced in the warmer climates have a very grateful flavour, approaching to that of March violets: hence the use of the Florentine iris in perfumes, and for flavouring liquors: the shops employ it in the white pectoral troches, &c.

OSIER, [*Salix.*] A small kind of willow; which from the particular uses for which it is raised, requires a different sort of management, and another manner of planting.

The osier very much resembles the willow in its appearance, but that is a smaller tree, its shoots are longer and slenderer, and its leaves also much longer; these are very narrow, and in the best kind are green on the upper side, but whitish, as it were, woolly underneath.

The osier loves a wet and low ground near waters, and nearly upon a level with the water. It thrives no where so well as in marshy places, near the edges of large rivers; or in those little islands that are formed by the breaking of their current; and every way surrounded by the water. The ground for an ozier bed should be a rich black mould; and this is very common in these low and wet situations.

The design in planting the osier is, that it may shoot out a great quantity of fine slender twigs, which are to be cut at a small growth. Therefore there is no occasion for a trunk either of the pollard or timber tree form. This would only exhaust a great deal of the nourishment taken in by the root, and deprive the shoots of it; neither are they so apt to rise straight and fine, unless they begin near the ground.

On this depends the peculiar way of planting the ozier. It is raised in the same manner as the other willows, by truncheons or stakes driven into the

ground; and it is proper always to let a certain quantity of the ſhoots ſtand for a due growth for this purpoſe, when the reſt are cut. But as theſe are not to riſe in a trunk, they muſt not be above four foot in length, and three foot of this muſt be thruſted into the ground.

They will, by this means, have a fine ſupply of roots; and beginning to ſhoot ſo near the earth, all the nouriſhment will be carried up into the twigs.

Theſe ſtakes are to be planted at three foot diſtance, and they will quickly yield a large profit: the twigs riſe numerous from their tops; and being cut down pretty cloſe, in the manner of ſhrowding pollard trees, they ſend up a new ſet of twigs again almoſt immediately, which quickly grow to their proper ſize.

The time of cutting oſiers is in September; and the advantage that may be made of planting them is very great. Many waſte pieces of wet ground might be made to yield a great profit by them.

If ſtakes or truncheons of a proper bigneſs cannot be had, more time will be required to raiſe the ozier bed; but it may be done from ſmaller ſets. Theſe are to be cut four or five foot long, and ſtuck at the ſame diſtances into the ground. They will grow very freely; and when they have ſtood three years, they are to be cut down within a foot of the ground; and from thence will riſe the twigs in great abundance; and they will continue affording a ſupply of them many years.

The fineſt and beſt kind of oſier is that here deſcribed with long leaves, white underneath; but there are ſeveral others that anſwer the purpoſe very well. The twigs are of conſtant and ready ſale. The baſket-maker's work depends upon them; and there is a great conſumption of them among the fiſhermen. The wheels, as they are called, for catching eels and other fiſh, are made of them: and baſkets, hampers, and the like, of which the conſumption is, in a manner, endleſs and unlimited.

The quick growth of the twigs is a great article in the profit of an oſier holt, for they are cut every year; and the heads that bear them grow for a long time more and more buſhy at every cutting. So that here is a vaſt profit to be made with ſcarce any expence; annually returned and increaſed every year; and this upon ground fit for nothing elſe; for the oſier will grow and flouriſh on ground that is ſo looſe and ſo wet, that it would not afford hold for the root of any other kind of plantation whatſoever.

As the ſtems of the oſiers will decay in time, let the huſbandman always take care to have a ſupply. Nothing is ſo eaſy: for 'tis only ſticking into the ground ſome twigs between the ſtems, which will take their time to root themſelves, and grow to a due bigneſs; and when properly cut, and managed according to the directions already given, of raiſing an oſier ground from ſets, will be ready to yield their produce as the old ones begin to decay; and may thus be made to ſupply their place gradually as they are wanted.

OSLETS. Oſlets are little hard ſubſtances that ariſe among the ſmall bones of the knee of the horſe, on the inſide; they grow out of the gummy ſubſtance which faſtens thoſe bones together, and derive their origin from a matter like that which produces ſplents, and like them proceed from the ſame cauſe, viz. the ſtraining of a horſe while he is young, and before his joints be well knit; and from hence alſo we may underſtand the nature of all thoſe hard tumours already treated of, which grow near the joints, whether they be *Spavins*, *Jardons*, *Curbs*, or of any other kind, their chief difference conſiſting in their ſituation, being all of them formed of a matter, which, in time, grows hard, yea, even as the bone itſelf; and this is the reaſon why they cannot be moved but by things that are of the greateſt efficacy. Notwithſtanding, if they be diſcovered before they acquire ſuch a degree of hardneſs, they may be made to yield to leſs powerful remedies than what we are ſometimes conſtrained to make uſe of.

OST. *See* OUST.

OVERFLOWING LAND. This is commonly effected by diverting the ſtreams of rivers, brooks, land-floods, or ſome part of them, out of their natural channel: but were the ſtreams lie ſo low as to be incapable of over-flowing the lands, they are made uſe of to turn ſuch engines as may raiſe a quantity of water to do it.

When you have got your water up to

to the higheſt part of the land that you can bring it to, make a ſmall trench to carry ſome of the water in, to give you the level the land, keeping of it always as much as you can upon a level, or upon the higheſt part of the land, ſo that from the upper part you may be able to water the lower when you will, and by carrying of the level of this ſmall trench you will be directed how to cut on your main trench, which ought to be made big enough to receive the whole ſtream that you raiſe, and to be rather broad than deep. At convenient diſtances according unto the bigneſs of the ſtream, and the quantity of the land you are to water, make ſeveral ſmall trenches, making your main trench the narrower, proportionable to the number of drains you lead from it; only you muſt note, that the greateſt advantage of over-flowing is, where you can do it frequently, and draw it off quickly; becauſe where water ſtands long on ground, eſpecially in winter, 'tis apt to breed ruſhes and weeds; and therefore where any ſuch inconveniency is, draw it off by ſmall trenches.

Some graze their land till Chriſtmas, and ſome longer; but as ſoon as 'tis fed bare from Allhallowtide to ſpring, that the graſs is not too high, is the beſt time for over-flowing, except it prove a dry time in April or May: If it do, it will be of mighty advantage; for in hot weather the graſs grows three times as much if moiſtened, as at another time. Land-floods are beſt to overflow with in winter, and warm fattening ſprings in ſummer, only you muſt obſerve to let the water dry in before you water it again; and not to let cattle poach it, and that you water it at night ſo as that the water may be gone before the heat of the day comes, which is apt to occaſion the ſcorching of it; and to rot the roots of the graſs by lying too long on the land. The waſhing of high-ways, towns, or ſtreets, eſpecially of commons, where ſheep feed, is a very great improvement of land or trees.

But in ſome places iſſue ſprings whoſe waters are injurious to land, as ſuch uſually are that flow from coal mines, or any ſulphurous mineral, becauſe they are of ſuch a brackiſh, harſh quality, that they kill vegetables, inſtead of nouriſhing of them; as too much ſalt, urine, or dung will do, if not applied in due quantities; yet we cannot but think that even theſe waters would make a great impeovement, if ſparingly uſed, and in wet times, that a great quantity of other water might mix with them. Theſe waters are commonly of a reddiſh colour, and leave a reddiſh ſentiment where they run, and are much better when they have run ſome diſtance, than at their firſt breaking out.

Alſo ſome ſorts of lands will not be improved by watering, except only with land floods, and in ſummer, when 'tis a very dry time; as your cold clay, and ſtrong land that lies very flat; partly becauſe of its flatneſs, and that water will not eaſily penetrate ſtiff clay; and therefore light dry warm grounds are the moſt improved by watering.

OVER-REACH. A wound in the fore-heel of a horſe, made by the point of the hind-ſhoe.

When this wound is only ſlight or ſuperficial, it is, in general, very eaſily cured, by waſhing it clean, and applying the wound ointment: but it ſhould be obſerved, from the nature and manner of the injury, where the blow has been ſmart, that it differs widely from a common cut; the part here being both torn and bruiſed, and conſequently it requires to be properly digeſted, in order to lay a good foundation for healing.

For this purpoſe, after waſhing out any dirt or gravel with ſoap-ſuds, &c. let the wound be digeſted, by dreſſing it with doſſils of lint dipped in an ounce of Venice turpentine, divided with the yolk of an egg, to which half an ounce of tincture of myrrh may be added; over this dreſſing it would be adviſeable to apply the turnip poultice, or that with ſtrong beer grounds and oatmeal, three or four times, or oftner, till the digeſtion is procured, and then both theſe dreſſings may be changed for the precipitate medicines, or the lime-water mixture; obſerving always to apply the doſſils carefully to the bottom, to fill up the ſore with the ſame even to the ſurface, and to bind all on with a compreſs and roller: and if any cavities appear that cannot conveniently be dreſſed to the bottom, they ſhould always be laid open, or no proper foundation for healing can be obtained. The hoof alſo ſhould be kept ſupple, or pared away, when the growth

of it interrupts this end, as is ſometimes the caſe.

OUST. A kiln, generally applied to that uſed in drying hops.

It is built with fire-places in the nature of malt-kilns; and at a proper diſtance over the fire is an hair-cloth ſtrained upon laths; and thereon the hops are laid, and raked even to the depth of about ſix or ſeven inches, for the better conveniency of drying them equally; and when they are properly cured on the under ſide, they are carefully turned; and by that means the upper ſide becoming the under, the whole ſhares the fire alike. The perſon that performs this part is called the dryer, whoſe buſineſs it is to manage the fires.

The fuel commonly made uſe of is charcoal, for its freeneſs from ſmoke, and affording a ſteady heat. Great nicety is required in this part; a ſmall fire being to be made, at firſt, that they may heat gradually, and ſo raiſed as they dry; that it may be done without ſcorching; and the fire is to be lowered by degrees, againſt they are ready to be taken off: the time required is about eight hours.

But as charcoal is very dear, being three or four pounds per load, many people have adopted the method of drying with ſea-coal, upon what they call cockle-ouſts, which are ſquare iron-boxes, placed upon brick-work, and a flue and chimney in the back part of the building for the ſmoke to go off. The computation is, that a chaldron of ſea-coal, at about twenty-four ſhillings, will dry a load of hops, and that a load of charcoal will do no more. It is indeed expenſive to erect ſuch ouſts, as there muſt be no timber near them; and an iron-beam and iron-laths are to be uſed, and they covered with plates of tin or iron, properly faſtened together.

A gentleman has lately claimed the merit of having invented a new method of drying hops with ſea-coal, or any kind of fuel whatever, by means of a moveable iron furnace: it is in form of an horizontal cylinder, ſtopped at both ends: it lies on an iron carriage, which rolls on four iron-wheels: in the fore-end of the cylinder is the furnace door, and a hollow iron flue runs in a horizontal direction along the upper ſurface of the cylinder from the back, till it reaches the fore-end of it, when it takes a vertical direction, and is carried as high as is neceſſary to convey the ſmoke out of the ouſt. We cannot pretend to ſay what are the particular advantages reſulting from the uſe of this rolling furnace, never having ſeen it at work.

OUT-HOUSES. Are ſuch as belong and are adjoining to dwelling-houſes.

OUTLAND. Among the Saxons, was that land that lay beyond the demeſnes, and was granted out to tenants, though at the will of the Lord, in like manner as copyhold eſtates.

OXEN. Oxen ſhould be tall, full bodied, ſhort jointed, and well put together in every part, ſo that one ſees their ſtrength. Their hair ſhould be fine, and lie ſmooth, for that betokens health, and a good kind.

The ſtrength of the ox is very great, and he has patience to endure fatigue, but he is ſlow, and muſt not be put beyond his natural pace. He will not work eaſily or freely, if this be attempted, and what is worſe, fretting & hurrying throws him into diſtempers.

'Tis but in ſome particular parts of England they now breed their oxen to labour, but it is very profitable. In theſe places the huſbandman cannot be too much warned againſt his hurrying them in their employments; for he ſhould conſider that they are to be fed as well as worked; and while he makes them thus liable to diſtempers, he takes them off from one, and makes them incapable of the other.

When oxen are to be trained to labour, they muſt be firſt put to work at three years old, but they muſt be brought to it gently, and, by degrees, in the manner of a young horſe; for if they be puſhed or worked too hard at this time, they are ſpoiled for ever.

Great care muſt be taken to match ſuch well as are to draw together, for otherwiſe they draw unequally, and ſpoil both the work and one another.

In this caſe of matching them, regard muſt be had to three things; their height, their ſtrength, and their ſpirit: for ſome are tall that have not much ſtrength; and others have a great deal of power that are ſluggiſh.

In general they are very tractable and gentle, but regard muſt be had to their ſeveral natures, for they will not be

be forced out of them by any uſage; and they may be greatly injured in the endeavour.

Of all the kinds the pyed Lincolnſhire ox is the fitteſt for labour. He is naturally long-bodied, and till put up to feed, is leſs fleſhy than any of the other good breeds; though he takes to fattening very readily with reſt, and a good paſture.

When the young oxen are firſt put to work, a great deal of care muſt be taken not to overheat or fatigue them. They muſt be ſuffered to reſt in the middle of the day in hot weather, and the ſervant ſhould give them ſome hay, which will ſupport them in the new fatigue of their labour, much better than graſs. They muſt be well fed during the whole time of their labouring, for they will not do much if they be not kept in ſpirits by good nouriſhment; but in this let the huſbandman underſtand moderation; for there is difference between feeding them for ſtrength, and for fattening.

An ox for labour muſt neither be bare, nor muſt he be too fat; in the firſt caſe he will be weak, and in the other he will be lazy. They ſhould be treated gently, for they do not underſtand blows and hard uſage, and may eaſier be beaten into ſickneſſes and diſorders, than into labour.

In this way an ox may very well be kept to work ſeven or eight years, that is, till between ten and eleven years old; and in that time he will do the owner an incredible deal of buſineſs, provided he thus underſtand how to manage him, for it all depends upon that; otherwiſe he will be as ſtubborn as an aſs, and will not be fit half his time for ſervice,

Sometimes a young ox will prove very ſtubborn, vicious, and unruly; but this, when enquired into, will be found owing to ſome bad uſage at ſetting out, for the ox has nothing of that bad diſpoſition in his nature. When this happens, he muſt be kept hungry; and when he has faſted long enough, he muſt be made to eat out of the hand: when he is brought to his labour, he muſt be tied with a rope; and at any time when he grows faulty, he muſt be cheriſhed, and fed with a mouthful of hay by hand; thus bringing him by ſoft means to quietneſs, and a readineſs in performing his buſineſs; for nothing elſe will do with this creature.

For the breaking a young ox to the field, no way is ſo well as to ſingle out one of the tameſt of the old ones, that is of its own ſize; and yoke them together. Let them be put to ſome ſlight work, and ſuffered to do it eaſily and ſlowly: they will thus draw equally, and the young beaſt will become perfectly familiar to it. They will be apt to get into too ſlow a gait at firſt, but by degrees they muſt be ſpirited to be a little briſker in their pace; and after half a dozen times going out with this quiet beaſt, the young one muſt be coupled with an ox of more ſpirit, that will learn him to go quicker. Thus he is to have his companion changed from time to time, till in the firſt month or ſix weeks of his labour, he gets to draw with the briſkeſt of the ſtock.

This is the only way to get the ox to his ſpeed; for at beſt it is not great, nor will he be brought to it by force.

The advantages of labouring with oxen are ſo great, that it is wonderful the practice does not extend farther. The ox of eleven years old, when he is unfit for labour any longer, may be fattened as well as at any time; and in the ſame manner if he fall lame, or by any other accident be ſpoiled for labour, at whatever age that happen, he may then be fed up for ſale.

In this the ox has a great advantage over the horſe, which, when aged, or ſpoiled by accidents, is good for nothing, and becomes an entire loſs, and often a very great one to the farmer.

The food of the horſe is alſo a very expenſive article to the huſbandman, but that of oxen is cheap. They require no oats. They are very little liable to diſeaſes, whereas one is never ſecure of a horſe at all. But though the ox does not require ſo expenſive food as the horſe, yet ſuch as he eats muſt be good in its kind, and he muſt not be ſtinted. He muſt always have good graſs to go to, and good hay in winter, elſe he will be of little ſervice; for though he muſt not be fattened in his time of working, yet if he be not kept well fed, and in good ſpirits, he is worth nothing.

The greateſt uſe of the ox in the way of labour, is that of plowing; and 'tis that for which they are ſuited

by nature. They will work at this in the toughest and heaviest grounds as well as horses, and do as much in a day. They do not serve so well for drawing of carts and waggons; and are not fit to be used much in places where the roads are good.

In most counties the farmer would do well to train up some of his oxen for draught, though it is better not to depend upon them entirely for that service in any. We have shewn for what they are most, and for what they are least fitted. Every farmer has occasion both for carting and plowing; and the horses are in general fittest for the former, and the oxen most profitable for the latter: therefore when there are more teams than one kept, some should be of horses, and others of oxen, proportioning the number of either to the nature of the service, and of the roads and the ground. The Farmer who keeps two teams only, will almost always find it his interest to have one of them of oxen, and the other of horses.

In clayey lands, the oxen are most useful; and in chalky countries the least; the chalk soon spoiling their feet.

It is a custom in some places where oxen are used for draught, to yoke them by the horns, but this is awkward and troublesome. It is left off in many places where it was once used; and ought to be in all. The common way of yoaking them together by the neck and breast is vastly preferable, but harness best of all.

Whenever the farmer comes to a resolution of keeping oxen for labour, let him at the same time provide for a proper supply of them; and see that it be rather too much than too little, for it will always be more to his profit to sell what he does not want, than to buy for his necessary uses. To this end he should rear at least two oxen and two cow calves every year to keep up his stock; and put up his old, or injured beasts to fatten, and supply their places from this breed as occasion requires: for an ox, as before said, whether put off the team forage or injuries, will fatten as well as at any other time, and will bring a good price at market; and afford as good beef as any other that had not been worked.

When the husbandman buys in cattle to fatten, it should be either in spring, or toward the beginning of October. These oxen which are bought in early in spring, will, with proper care, be fat in July, August, or September, according to the goodness of the soil, and the manner of feeding them, and according to the condition wherein they were bought. An ox that is very forward when bought in, and is turned into a very rich pasture, will be fit for market in ten weeks; but there is no need that every ox that is bought for this purpose, should be in this forward way; or that every one should be hastened to a market condition in that hurry. The care of the husbandman in this should be, to suit his endeavours to the nature of his grounds, and to the best demand for the cattle: he may keep on fattening the whole summer months, and answer his purpose better both for the market, and for having the best service out of his land, than if he hastened up all that he bought, or bought only very forward ones.

Those oxen that are bought in about the beginning of October, will in general be fit for sale early in the following spring. There requires some management in this article of the husbandman's business, for without it he may lose by his industry, but with due care he will find a sufficient profit in this way. These cattle being for sale early in spring, will always fetch a good price; but the winter feeding of them may easily run away with what should be his profit.

The method is to forward these in flesh, before the winter sets in hard; and then to take care only to keep them up in flesh during the hard time, with hay or turneps.

They may be thus kept in a condition for market whenever it is worth while to sell them; and be sure of fattening up with great ease very early in spring, to a certain advantage.

Another way of buying cattle in the beginning of October, to great advantage, is to purchase young lean oxen which will pay for their winter keeping by their growth, and be ready to fatten up early in spring, to the fairest and fullest profit.

Another very good time of buying oxen for feeding is in August, or the be-

beginning of September. Theſe ſhould be got forward as ſoon as may be, by putting them into very rich paſtures, and they will be ready for the winter ſale.

This is the beſt method the huſbandman can take, who has rich and fine paſture ground; for no other will ſupport the large and valuable breed of theſe oxen. But he who happens not to have this advantage, is not altogether to decline thus much of the grazing buſineſs, which to the other proves ſo very advantageous.

Therefore he who has but moderately good paſturage, and is inclined to deal this way, ſhould ſet about in a different manner. Let him buy in a number of young Welch heifers, inſtead of oxen, in Auguſt or September, and put them into the beſt of his ordinary paſturages. He is to take his chance whether theſe prove with calf or not, but either way they will anſwer his purpoſe.

If they prove with calf his buſineſs is to keep them till ſpring, and then he will ſell them to a good advantage, with a calf by their ſide, for the dairy. If they do not prove with calf they will preſently begin to fatten upon his ground, which, though poor, is yet very fine in compariſon of what they have been uſed to, and he will be able to ſell them out at a very good account at Chriſtmas or in ſpring; at both which times meat is dear, and conſequently cattle fetch a price.

Theſe heifers will, to the huſbandman thus ſituated, anſwer, in ſome meaſure, the purpoſes of oxen; and he is not to complain they do not bring altogether ſuch a price; becauſe neither the cattle themſelves, nor their keeping, have coſt him ſo much as in the other inſtance. Such land being cheaper than the rich and fine paſture ground, on which the large oxen may be fattened.

But there is this to be conſidered, that the advantage will be the greater, in proportion as the farmer has the convenience of hay, or turneps, which are the two foods for winter fattening of cattle; and in proportion to his nearneſs to ſome large city, where the demand and the price will anſwer to the expenſive feeding of hay. About great towns they muſt afford to let a beaſt eat a couple load of hay in a winter, becauſe the demand is certain and the price good: but this will not do in remote places.

Let the huſbandman who buys cattle for fattening, take great care in the choice, for on that will depend a large ſhare of his ſucceſs. Let him examine their bulk and ſhape, and the forwardneſs they are in at the time, and after that proportion the goodneſs of the paſture to their kind.

Thoſe that are intended to be kept up for a winter, or early ſpring market, muſt be turned out in September into the rowens, till the weather become ſevere by much ſnow or a very hard froſt; and till this time they will not need any fodder.

Upon the coming in of the hard weather they muſt have ſome hay regularly every morning and evening, which muſt be proportioned to what the ground ſtill affords. The more they find there the leſs they want of the ſupply; and the leſs there is, the more hay muſt be each time given them.

The froſts have an effect upon graſs, eſpecially upon the worſt ſorts, to ſweeten it. The ſour graſs which the cattle had left untouched for a great while, becomes palatable to them after two or three nights good froſt, with a large white ryme. They will eat this greedily; and it will make hay the leſs neceſſary, till the ſnow covers it, and they cannot get at it. 'Tis at theſe times the foddering is to be largeſt and beſt; for without a due care they will, in a little time, loſe all the advantage they had made in many weeks.

For thoſe oxen that were bought in lean, and are not got into any great degree of fleſh by the beginning of the hard ſeaſon, ſtraw will do inſtead of hay: and the huſbandman muſt begin with barley ſtraw, and then come to oat ſtraw, both which are very good food to cattle in this condition; and will keep them as they are, and in a readineſs for any farther improvement, when it comes upon eaſy terms.

Toward the end of winter the whole produce of the ground that hath been thus fed, will be eaten up, and then the oxen are to be taken into the yard. If the huſbandman has oxen in two conditions, (the one that he feeds with hay, the other with ſtraw,) they muſt be put up ſeparate; and their food muſt be put up in racks for them.

The

The farmer often complains that his cattle will not eat their fodder, when they are taken up into the yard, though they did freely when it was given them in the field. But this is generally owing to the folly of giving them too much at a time. An ox will often eat heartily and freely out of the crib for a time, till when he had often breathed upon it, what was left became quite disagreeable to him.

This is a delicacy in the nature of the animal, and nothing can break him of it; but all the inconvenience of it is eafily prevented, by giving thefe cattle a little at a time, and often. This being, for all reafons, the beft way of foddering all cattle in the yard.

Let the hufbandman take care that his yard be well fheltered, and kept dry. Let there be ftraw enough fcattered about it, that his cattle may lie fweet and warm; this will greatly affift in keeping them in good cafe; and he need not grudge the expence, for what the ftraw is worth will be many times over made up to him in dung. Their trampling this litter, with their dung and urine, converts the whole into a very rich manure; and the quantity becomes fo confiderable, that it is an article of great confequence.

When oxen are put to be fattened on land, they may be turned in either alone or with horfes; or they may be put into the paftures firft, and the horfes afterwards. Which ever way is ufed, let the hufbandman take care of the time of turning in his oxen. Many think they ought to let the grafs be very well grown before they put them to feed upon it; but they are greatly miftaken. There is not a greater difadvantage the farmer can lie under, in this way, than the having his paftures too high grown before he puts the beafts into them. *Efpecially mead*

The ox is a nice creature, and does not love a rank grafs. In this cafe they only nip the tops, and the remainder rots upon the ground. When grafs is grown too high, in autumn efpecially, it becomes four, and the cattle will not eat it freely before the froft has fweetened it to their tafte.

If it happen the farmer have at this feafon of the year, a pafture ground of tall grafs, the beft method he can follow is this. Let him firft turn in his oxen in a proper number, and they will eat off the tops; but as they will meddle with no more of it, when this is done they fhould be removed out of it. Horfes are then to be turned in, who, not being fo nice as the ox will eat it down lower; and after thefe he may feed it with fheep, which will ftill find a great deal for their purpofe, that the ox and the horfe had both left.

If the paftures in the farmer's grounds be all of nearly the fame kind, and all of a proper grafs for feeding of his oxen, ftill let him frequently change their place, removing from one of the clofes to another. This anfwers a double purpofe; it gives the cattle a variety of food, and it gives every piece of the ground reft at times to fhoot afrefh after their eating. Their tafte is fo nice as to diftinguifh the growth where it appears to our eye all the fame; and therefore they will be pleafed with removing from one ground to another: and each clofe will fhoot up with fpirit and freflinefs from their cropping of it, when it is quiet for a little time from the treading of their feet.

Let the hufbandman always purchafe as large a breed as his ground will maintain; and by this management he will find it fupport a better fort than perhaps he might imagine it could, or than it in reality would do, in the hands of a lefs fkilful perfon. The fize of the ox is a vaft article, for it makes great addition both in the flefh and tallow.

Let the ox have a fmooth forehead and a deep belly, if he be intended for fattening. The ftrength of his joint is more the matter when he is firft defigned for labour.

In buying oxen for fattening preference is to be given to the young; but if they be fomewhat older, let the farmer fee that they are healthful. Let him feed his own breed for flaughter, if he ufes their labour till the beft time of their working is over, as before directed; but let him not bring them in for fattening at that age, without he bargain accordingly.

It is always a good fign of health that an ox frequently licks himfelf. It is a proof that he is in good humour with himfelf, and in fpirit; for when they grow fickly, dull, and dronifh, they utterly neglect themfelves, and their coat becomes rough, and ftares for want of this little care of their own, which keeps it in order.

Never-

Nevertheleſs, every thing is to be underſtood within the bounds of moderation. This licking of himſelf, which is in general a ſign of health in the ox, may be a diſeaſe. They will ſometimes lick till they cannot eat, for they ſwallow a great many of the hairs they lick off, and they will ſometimes get together into a kind of ball in the ſtomach, which will impair the creature's health. In this caſe the owner muſt, at times, waſh the ox with a ſtrong decoction of worm-wood, which is a taſte it abhors; and finding this bitterneſs on the ſkin, it will be cured of licking; as children are weaned by rubbing the nipple with aloes.

Some, for this purpoſe, cover the creature with his own dung, but this is a filthy way. As the licking is always done for cleanlineſs, the ox will often tire himſelf, from day to day, with endeavouring to get this off; or elſe he will utterly neglect himſelf, which will prove of as bad conſequence.

In examining how the ox proceeds in fattening, the ſureſt way is to feel the hindermoſt rib. If all be ſoft and looſe about that, 'tis a proof that the creature is getting into good fleſh. The part behind the ſhoulders in an ox, and the navel of a cow, are the parts to be examined, to know how they encreaſe in tallow. *Alſo at the Rump.*

Finally, there is one thing we ſhall recommend to the huſbandman very ſtrongly, from experience, as excellent toward the fattening of cattle, and this is the bleeding of them at proper times. This ſhould be done once at leaſt, and commonly it may be done twice, with great benefit during their feeding.

The method to be obſerved is this: in the cattle bought in ſpring, always to bleed them as ſoon as they are put to paſture, which makes them take to fattening directly. In thoſe bought in autumn, follow the ſame method of bleeding, at the time of turning into good paſture; which will not only help their fattening, but prevent diſorders. This is all there is to do with thoſe intended for the winter market; but for ſuch as were bought lean to be kept for growing in winter, and fattened up in ſpring, have them bleeded twice, once when they are bought in, and a ſecond time early in ſpring, when they are going into the paſture for fattening.

OX-BOOSE. An ox-ſtall, or cow-ſtall, where theſe creatures ſtand in the winter.

OX-HARROWS. Very large harrows, called, in ſome counties, drags.

OX-GANG, or *Ox gate*. A quantity of land meaſuring fifteen acres, being as much ground as a ſingle ox is ſuppoſed to be capable of ploughing in a year.

OX-EYE, [*Buphthalmum.*] There are ſeveral ſpecies of herbaceous and ſhrubby plants, which ornament the pleaſure garden and green-houſe, and are all propagated by ſeeds and cuttings.

OXEYE-DAISY, [*Bellis-Major.*] This plant is frequent in fields, and among corn, flowering in May or June. The leaves have a mucilaginous, ſubſaline, roughiſh taſte. They are ſaid to be detergent, reſolvent, aperient, and alſo moderately aſtringent. Geoffroy relates, that the herb, gathered before the flowers have come forth, and boiled in water, imparts an acrid taſte, penetrating and ſubtile like pepper; and that this decoction is an excellent vulnerary and diuretic.

OX-SLIP. A ſpecies of cowſlip.

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PACK-HORSE. A horſe uſed for carrying loads on a ſaddle made for that purpoſe.

PACK-SADDLE. A ſaddle contrived for the carrying of burthens on a horſe's back.

PACK *of Wool*, is ſeventeen ſtone and two pounds, or two hundred and forty pounds weight.

PAD. An eaſy pacing horſe.

PAD. A low ſaddle.

PAD. A road, a path.

PADDLE. An inſtrument to open gutters in a water courſe, to clean the ploughſhare from dirt, weeds, &c.

PADDOCK. A ſmall field or incloſure.

PAIGLE. A cowſlip.

PAIL. A wooden veſſel to carry water or milk in.

PAINS, *or watery ſores on the legs and paſterns.* Theſe are cauſed by a ſerous matter oozing through the pores, which is indued with ſuch a ſharpneſs, that it makes the hair fall off from ſeveral parts of the legs and paſterns; ſometimes it looſens the *Coronet* from the hoof; and ſometimes the fleſh appears as if it was disjoined from the bones and ſinews; wherever the matter runs, it ſo hardens the ſkin, that it is apt to break out into cracks and rents, which diſcharge abundance of ſtinking matter, as in the abovementioned caſe. The cure conſiſts chiefly in internals, and in thoſe things that are proper to rectify the blood, as decoctions of box-wood, guajacum and ſaſſafras, &c. or the ſaid woods may be raſped and mixt with his oats, and ſometimes among dry bran. All the medicines preſcribed in the farcin may be made uſe of in this caſe: but if the horſe be inclinable to a dropſy, which may be known by the yielding of the ſwelling, and likewiſe as the fore legs will alſo be affected, and by the other ſigns peculiar to that diſtemper, he muſt then be treated accordingly; mean while the following applications may be made outwardly.

'Take honey, turpentine, and hog's-greaſe, of each a like quantity: melt 'them over a gentle fire in a glazed 'pipkin, and add a ſufficient quantity 'of wheat flour to make it into a 'poultice.' Or this:

'Take fœnugreek meal, bean flour, 'linſeed meal, and muſtard ſeed 'pounded, of each a like quantity. 'Boil them over a gentle fire, with a 'ſufficient quantity of ointment of 'marſh-mallows; into the conſiſtence 'of a poultice.'

Theſe muſt be applyed warm to the legs and paſterns, to draw out the matter, and bring down the ſwelling. If there be foulneſs, you may take a pound of black ſoap, half a pound of honey, four ounces of burnt allum, two ounces of verdigreaſe in powder, a pint of brandy or ſpirit of wine, with a ſufficient quantity of wheat flour. Let this be ſpread on cloths, and applyed as the former.

As ſoon as the ſwelling is abated, and the moiſture dryed up, it muſt be very convenient to keep the legs and paſterns rolled up with firm bandage, whereby the parts will not only be kept cloſe, but the influx of freſh matter prevented; for the continuance or frequent returns of thoſe watery eruptions brings ſuch a looſeneſs into the legs, that it cauſes a rottenneſs into the fruſh, breeds ſplints; and, ſometimes by rotting the tendons, becomes the cauſe of quitter-bones, foundering, and other diſtempers in the feet.

PAINPISS, *or Strangury.* This diſeaſe happens moſt frequently when there is an obſtruction of the dung hardened and indurated in the ſtraight gut, yet ſometimes it proceeds from another cauſe, and is moſt likely occaſioned by an inflammation of the bladder, or an ulcer in the kidneys; for when there happens to be an ulcer in thoſe parts, the ſharpneſs of the matter proceeding from thence may no doubt cauſe pain, when

when it passes into the *Urethra* or piss-pipe, by abrading and carrying off the *mucus* that should defend that sensible part, so that a horse in this case must piss in pain; and as this will also cause an inflammation there, instead of pissing freely, he will often dribble.

An inflammation in those parts, arising from any other cause, as hard riding, too long a detention of his urine, has generally the same effect; but an inflammation of this kind happens the more readily if there be a lenter of the dung.

To remove all such disorders, it will be necessary to give emollient softning clysters, made of a decoction of mallows, marsh-mallows, mercury, camomile and the like, with a mixture of oils and other slippery things, or clysters made of fat broths; and to make them a little purgative, common treacle or manna may be dissolved in them, to the quantity of six ounces or half a pound.

Half an ounce of *Sal Prunella* or purifyed nitre may be dissolved in his water for two or three days together, or two ounces of crude tartar may be boiled in it; and among his provender may be mixt the leaves of strawberries, raddishes and turnip-tops.

But if after hard riding you have reason to suspect an inflammation in the kidneys, the bladder, or urinary passage, which must at the same time be accompanied with feverish symptoms, it will then be very proper to take blood from the neck-vein, and the use of the clysters may be repeated as often as you shall see occasion; but if you have reason to fear an ulcer in the kidneys, in that case all cleansing balsamic medicines are to be complied with, for which purpose we chiefly recommended the following balls.

Take gum benjamin half a pound. Balsam of capivi, Flour of brimstone, each six ounces. Bees wax three ounces. Crude opium one ounce. Honey four ounces. Beat them well together with syrup of marsh-mallows, enough to make into balls of two ounces each, one to be given every morning, an hour before his water.

PALATE, *Falling off.* A troublesome disorder in oxen, from over driving, &c. rub the palate with pepper and salt mixt together.

PALE. A piece of wood split or sawed, for the purpose of fencing, where hedges cannot be made, or are not sufficiently secure.

PALING. Fencing with pales.

PALISADE. A row of handsome pales set up by way of ornament or defence. The gardeners use this word to denote a row of trees, which bear branches and leaves from the bottom, cut and spread in the manner of a garden wall, along the side of an alley or the like, so as to appear like a wall covered with leaves.

PALM-TREE. There are several species of this tree, as the DATE-*tree*, MACAW-*tree*, CABBAGE-*tree*, &c.

PALMETTO. A species of palm, the leaves of which are used as thatch in the West-Indies.

PALMS. The flowers of the willow.

PALSY. This disorder has been usually reckoned the same with the staggers, but certainly, without any reason whatsoever; the former implies the absence of fever or stimulus, the latter, an increased degree; in the one, warm cordials will be necessary; in the other, emollients and anodynes. Warm stimulating embrocations will be very proper. Such as the following:

Take spirits of wine and camphor 6 ounces, spirits of sal ammoniac 2 ounces, mix and bathe the part affected night and morning.

Such medicines should be given as will promote the circulation of the blood. Such are the following balls:

Take assafœtida six ounces, grains of paradise in powder two ounces, aloes two ounces, honey to make 6 balls, give one night and morning,

PANIC, [*Panicum.*] A plant resembling millet in its stalks, leaves, and roots; but differing in its spikes, or ears, which are about the thickness of a man's finger at their base, and growing taper toward their points. They are about eight or nine inches long, and closely set with a small roundish grain, sometimes white, sometimes red or purple, and sometimes yellow. It is raised and reaped in the same manner as millet, but does not require so much rain. This plant grows naturally in both the Indies, and is cultivated in many parts of Europe for the food of men. Cakes and bread are made of it in Germany, Italy, and the southern parts of France; but it is not reckoned so good nourishment

ſment as millet: nor is the German ſort ſo much eſteemed as the Italian; though the former ripens beſt in cold countries, where it is frequently ſowed in land which will not produce better grain. It thrives moſt in a dry ſtiffiſh ſoil, ſuch as the ſides of hills, and even in ſtony ground; grows to the height of about four feet, and branches very much; for which reaſon the horſe-hoeing huſbandry is by far the fitteſt for it. The plants, if managed rightly, ſhould ſtand eighteen inches aſunder, in rows three feet apart, that there may be room to hoe the ground between them, and to keep them clear from weeds. When grown pretty tall, they ſhould be ſupported by ſtakes, leſt the wind break them down; and particular care muſt be taken to guard againſt birds when their ſeeds begin to ripen.

PANNAGE. The food which ſwine feed upon in woods, as acorns, and the maſts of beech. It alſo ſignifies the money taken by the King's agiſtors, for the privilege of feeding hogs in the King's foreſts.

PANNEL. A low ſaddle.

PANSIES. Hearts-eaſe.

PANTING-EVIL. A diſorder in cattle, cauſed by extraordinary labour, over heat, &c. the ſymptoms are, great faintneſs and unwillingneſs to move, ſighing, moaning, &c.

Let the beaſt be kept very quiet and be ſupported with ſome ale ſpiced, and bread ſopped in it; or, boil ſome roſemary, and ſome wormwood, in ſome ale, and give the beaſt to drink.

Give an ounce of Bracken's cordial, every four, ſix, or, eight hours. Let the food be a little bran and oats, with ſome very ſweet hay.

PANTILES. A peculiar kind of tiles made of clay, moulded and burnt.

PAPAW. A plant of the gourd, or ſquaſh kind, growing in the Caribbee Iſlands, and the warmer parts of America. May be propagated as melons.

PARADISE-APPLE. A kind of apple tree, formerly much eſteemed for ſtocks to graft on.

Grains of PARADISE. This fruit is about the ſize of a fig, divided internally into three cells, in each of which are contained two rows of ſmall ſeeds like cardamoms. Theſe ſeeds are ſomewhat more grateful, and conſiderably more pungent, than the common cardamoms, approaching in this reſpect to pepper, with which they agree alſo in their pharmaceutical properties: their pungency reſiding, not in the diſtilled oil, as that of cardamom ſeeds does, but in the reſin extracted by ſpirit of wine.

PAREIRA BRAVA. This is the root of an American convolvulus, brought to us from Brazil, in pieces of different ſizes, ſome no bigger than one's finger, others as large as a child's arm: it is crooked, and variouſly wrinkled on the ſurface; outwardly of a dark colour, internally of a dull yellowiſh, and interwoven with woody fibres, ſo that upon a tranſverſe ſection, a number of concentric circles appear, croſſed with fibres, which run from the center to the circumference: it has no ſmell; the taſte is a little bitteriſh, blended with a ſweetneſs, like that of liquorice. This root is highly extolled by the Brazilians and Portugueſe, in a great variety of diſeaſes, particularly againſt ſuppreſſions of urine, nephritic pains, and the calculus. In the two firſt, Geoffroy ſays he has given it with good ſucceſs, and that the patient was almoſt inſtantly relieved by it, a copious diſcharge of urine ſucceeding. He likewiſe obſerved large quantities of gravel, and even ſmall ſtones, voided after its uſe: this effect he attributes not to any lithontriptic power, but to its diſſolving the viſcid mucus, by which the fabulous matter had been detained. He likewiſe relates, that he has had frequent experience of the good effects of this root in deterging and healing ulcers of the kidneys and bladder, where the urine came away purulent and mucous, and could not be voided at all without extreme pain; by the uſe of the *pareira*, the urine ſoon became clear, and of a due conſiſtence, and was evacuated freely; and by joining to this medicine balſam of Copaiba, the ulcer perfectly healed. The attenuating quality, which he had diſcovered in this root induced him to make trial of it in other diſeaſes, proceeding from tenacious juices, and in theſe likewiſe it fully anſwered his expectations: in humoral aſthmas, where the lungs were ſtuffed up, and the patient almoſt ſuffocated by thick phlegm, an infuſion of *pareira*, after many other medicines had proved ineffectual, occaſioned a plentiful expectoration, and ſoon completed a cure: in the jaundice, proceed-

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ing from thick bile, it did excellent ſervice; but in another icterical caſe, where the liver was ſwelled and hard, this medicine did no good. His doſe of the root in ſubſtance is from twelve grains to half a dram, in decoction two or three drams.

PARK-LEAVES. St. John's wort.

PARSLEY. The name of a well-known herb, which is cultivated in gardens for culinary purpoſes, it being more uſed in the kitchen than any other herb whatſoever; it will tolerably endure cold, but is apt to be deſtroyed in very ſevere winters, eſpecially where the land is moiſt; it is commonly ſown in the ſpring, and ſends forth a ſtalk the year after, which flowers in June or July, and the ſeeds ripen in Auguſt.

The common parſley is, by ſome ſkilful people, cultivated in fields for the uſe of ſheep, it being a ſovereign remedy to preſerve them from the rot, provided they are fed twice a week, for two or three hours each time, with this herb: but hares and rabbits are ſo fond of it, that they will come from a great diſtance to feed on it.

Baſtard PARSLEY. *See* BASTARD.

Mountain PARSLEY. Candy carrot.

Macedonian PARSLEY. The ſeeds of the Macedonian parſley are a ſtrong carminative, it is cultivated by ſeed, like the common parſley.

Baſtard-ſtone PARSLEY. *See* BASTARD STONE PARSLEY.

PARSNEP, [*Paſtinaca.*] The name of a well known root, cultivated in the ſame manner as carrots. If you intend to ſave the ſeeds of this plant, you ſhould make choice of ſome of the longeſt, ſtraiteſt, and largeſt roots, which ſhould be planted about two feet aſunder, in ſome place where they may be defended from the ſtrong ſouth and weſt winds; for the ſtems of theſe plants commonly grow to a great height, and are ſubject to be broken by ſtrong winds, if expoſed thereto; they ſhould be conſtantly kept clear from weeds, and if the ſeaſon ſhould prove very dry, you ſhould give them ſome water twice a week, which will cauſe them to produce a great quantity of ſeeds, which will be much ſtronger than if they were wholly neglected. Toward the latter end of Auguſt, or the beginning of September, the ſeeds will be ripe; at which time you ſhould carefully cut off the heads, and ſpread them upon a coarſe cloth for two or three days to dry; after which, the ſeeds ſhould be beaten off, and put up for uſe; but you ſhould never truſt to theſe ſeeds after they are a year old, for they will ſeldom grow beyond that age.

PASSION-FLOWER, [*Paſſiflora.*] The name of a very beautiful plant, having long ſlender ſtalks, which run a great length, and require ſupport; they are covered with a purpliſh bark, and are furniſhed at each joint with a digitated leaf, compoſed of five ſmooth entire lobes, connected with the ſtalk by pedicles, about two inches long, having two ſmall leaves embracing the ſtalks at their baſe; and from the ſame point comes out a long tendril, which twiſts round the neighbouring ſupport; the flowers come out at the ſame joints as the leaves, ſupported on footſtalks almoſt three inches long; theſe flowers have a faint ſmell, and continue but one day; they come out in July, and there is a diurnal ſucceſſion till the froſt in autumn puts a ſtop to them.

This plant may be propagated either from ſeeds, layers, or cuttings; they require a good aſpected wall; where they may have height for their ſhoots to extend, which ſhould be properly trained againſt it; and in the ſpring, the plants muſt be pruned, when all the ſmall weak ſhoots ſhould be cut off, and the ſtrong ones ſhortened to about four or five feet long, which will cauſe them to put out ſtrong ſhoots for flowering the following ſummer.

PASTURE-LAND, Is properly ſuch land as being laid down to graſs, is kept for the purpoſe of feeding cattle, not for mowing; but this diſtinction is not ſtrictly obſerved, and it moſt uſually means, all lands which have been laid down to graſs, whether for mowing, or feeding of cattle. *See* MEADOW. *& Laying down land*

The following method of improving wet paſtures, ſeems to be the reſult of experience.

" As I have, ſays an ingenious huſbandman, within a few years, not only had ſome experience in my own farm, but obſerved the methods employed by many neighbouring gentlemen and farmers in mending their paſtures, I ſhall communicate a few of my remarks to you on the improvement of wet

wet paſtures; which may prove, perhaps, of ſome little utility, as I ſhall ſpeak of nothing but what I have either performed myſelf, or ſeen hereabouts.

"The particular lands of which I ſpeak are looſe, woodcock, brick-earth foils, for about eighteen or twenty inches, and under that, clay to a great depth.

"Some that I have drained myſelf were exactly level, ſo as to be quite poiſoned with the wet, which could not drain of.

"From the beſt obſervations I could make on many experiments, the following is the method which anſwers beſt to improve them. I ſhall alſo give you the expence with us.

"The firſt thing to be done is, to make large, deep ditches round every field, and, if the fields are large, to divide them into ſmaller, of five, ſix, or ſeven acres each, by new ditches; nothing is attended with a more ſudden improvement of all the ground near the borders of the fields, than good ditches.

"I generally make mine ſix feet perpendicular deep, ſeven wide at top, and three at bottom. I never pay for them by the rod (which is cuſtomary) but give two-pence halfpenny per load, of thirty buſhels, for all the clay, &c. that is thrown out of them, and two ſhillings and ſixpence a ſcore loads for filling and ſpreading it.

"Thoſe ditches ſhould be made in ſuch a manner that no water can remain in them, but a deſcent from one to another, to carry it quickly off.

"It may eaſily be imagined how much theſe muſt drain the land, beſides the quantity of manure (clay) which ariſes out of them. Add to this the great convenience of having ſuch fences about a farm, that the farmer is ſure to find his cattle wherever he turns them, inſtead of their breaking perpetually into his corn or hay fields, which, in multitudes of farms, is ſo often the caſe: it is ſometimes the work of a boy, only to be hunting after hogs and ſheep that go aſtray for want of good fences.

"In the banks of new ditches we always lay white-thorn, fifty roots to a rod (the workmen are allowed ſixpence per hundred for gathering them;) but I always avoid intermixing any thing with it, eſpecially haſel, for in the nut ſeaſon, fences are pulled to pieces for the fruit, by all the boys and girls in the neighbourhood; and oak, aſh, &c. only gives an opportunity to get over the hedge with greater eaſe. Sallow, willow, elder, &c. are to be avoided in the hedge, or by way of hedge-ſtake for the dead hedge, as they grow ſo faſt as quite to overſhadow the quick, and even deſtroy it. After frequent cuttings, to render the plants thick and ſtrong, I keep the quick regularly clipped, which, in a few years, renders the fence impenetrable to man or beaſt, conſidering the largeneſs of the ditch.

"If an old fence is grown bad and thin, or compoſed of improper plants, I never yet obſerved it improved by planting quick in the gaps: the beſt way is, to reverſe the bank, and plant freſh quick.

"One advantage ariſing from good fences is not apparent at firſt ſight. To the diſgrace be it ſpoken of moſt of the gentlemen of large fortunes round Bury, the game is wretchedly deſtroyed by poachers, who take it with night-nets. Theſe vermin, who are generally labourers, ſwarm in every village round me. Their method is this: they take the farmer's horſes out of his fields, and, after their doing a hard day's work, ride them all night, as faſt as they can make them go, over the ſtubbles, to catch the partridges, blundering over every hedge (except ſuch as I have deſcribed) in their way, oftentimes ſtaking the horſes making gaps in the fences, riding over ſtanding corn, clover for ſeed, or any thing that is a cover for birds, and, after damaging the farmer in a moſt ſhameful manner, carry the produce of their infamous labour to many, who, to their great diſhonour, encourage theſe raſcals for their convenience. The money they get is ſpent at the next alehouſe, and inſtead of doing the farmer a good day's work, they are drunk, aſleep, or idle, the whole day.

"Now there are very few farmers horſes that will leap a-gate; but moſt will plunge through ſuch hedges as are common hereabouts: none could paſs ſuch ditches as I always make and recommend. A farmer in this pariſh has ſo effectually fenced in his fields with prodigious ditches, that I have heard him declare, that not a ſingle night-

night-netter has been on his grounds on horſe-back; and were they to attempt it, they would loſe more time in paſſing one ditch than was neceſſary to drag ſome whole farms.

"The pernicious effects, to farmers, of this abominable practice, are notorious, and cry aloud for redreſs: if they would eaſe themſelves, I know of no way but ſuch ditches as I have deſcribed.

"But to return:

"When the ditching is done, the next work is to land-drain the whole fields in ſuch a manner that every part of them may be laid dry. In a paſture of ſix acres, I did two hundred rods. If there is the laſt fall in any part, or any place more wet than others, the drains ſhould be cut through them. If the ſurface is exactly level, the depth of the drains ſhould vary, ſo that the water may every where have a deſcent.

"Theſe drains are made here, in general, thirty-two inches deep, twenty inches wide at the top, and four wide at the bottom. They are filled eight inches deep, with either ſtones or wood; but I ſhall ever recommend the former, as the moſt effectual and laſting, to thoſe who are not deſirous of ſaving the difference of the expence. However, I know many fields in this pariſh and neighbourhood that are drained with wood, and which anſwer extremely well; and I have been aſſured that they will laſt twenty or thirty years. Nay, in ſome parts of Eſſex I hear they do it with ſtraw alone; but this muſt be of ſervice for only a few years: if ſtone be uſed, there can be no doubt of its laſting. The labour of the whole is three-pence per rod; ſometimes it is done for two-pence halfpenny.

"If with ſtone of the farmers, a load of thirty buſhels will do three rods, which coſts one ſhilling and a halfpenny ſtubbing and picking; ſo the expence of a rod is ſeven-pence, beſides carriage of the ſtone, which is not much: but if he buys his ſtone, as is much the moſt probable in this country, we may ſuppoſe he muſt go two miles to fetch it, and give a ſhilling for eighteen buſhels ready picked: the carriage is worth a ſhilling more, and reckoning the eighteen buſhels to do a rod and half (which is near the matter) the ſtone of it will coſt per rod, one ſhilling and four-pence.

"If buſhes are uſed, a load of forty faggots will coſt if he buys them, or be worth if he has them, five ſhillings, and coſt cutting one ſhilling. They will do ten rods; ſo that the whole expence of doing a rod with them will be ten-pence, and of ſtone one ſhilling and ſeven-pence.

"The very firſt year the prodigious advantage of theſe drains appears, eſpecially if the ſeaſon proves wet. The graſs (or corn if in ploughed fields, for it anſwers in all) will be freſh, vigorous, and ſweet, wherever the paſtures are drained.

"I have a field of ſix acres (mentioned above) which by land-draining, ditching, and manuring, is an exceeding good paſture, and has produced two tuns and ten hundred weight of hay per acre, in a very good year, and generally thirty-five hundred weight per acre; whereas the paſtures adjoining are ſcarce worth the farming, and let but at ſeven ſhillings an acre, producing ſcarce any thing, but a little feed for lean cattle. The ſoil is the ſame in both; the ſix acres, about twelve years ago, being full as bad as the reſt.

"To improve ſuch wet land, nothing can be more advantageous than the clay which is thrown out of the ditches. Eighty loads per acre is the quantity I have laid on, and have been told by ſeveral ſenſible farmers (who clay a good deal) that it is a proper covering; but if nothing is mixed with it, ninety-five or one hundred. I know a piece of graſs-land greatly improved, on which were ſpread one hundred and fifty loads.

"My method is to make a large hill of manure, by firſt laying a quantity of clay regularly on a heap; then placing a thin layer of muck, ſuch as I have, upon it, either my ſtable or rack-yard dung, or bringing it of any kind in my waggon from Bury; on this layer, another thick one of clay; then the ſecond of dung, and ſo on; letting the proportion be about twenty loads of dung to fifty of clay. Theſe heaps, after remaining ſix months without ſtirring, I mix well together by turning them over, which a workman will do at the rate of eight ſhillings for one hundred loads. Let it lie ſix months longer in this ſtate, and then carry it on to the land, paying

two

two ſhillings and ſix-pence per ſcore loads for filling and ſpreading. This I take, from experience, to be by much the beſt way of manuring with clay, as it works and impregnates the ſoil much ſooner than alone.

" Whenever I clay arable land, I do it on clover paſtures, after the crop of corn is off, managing it in the ſame manner as for paſtures. If it is ploughed in directly, it is ſeveral years before it works; but having a winter and ſummer to diſſolve and powder it, it waſhes into the ſoil more equally, and in a properer ſtate for improvement.

" Theſe are the principal points to be obſerved in improving ſuch wet, cold, looſe, paſtures as I have deſcribed: ſome that I have quite changed by theſe means were half over-run with moſs and ruſhes; but draining them thoroughly, and claying them, kills all rubbiſh of this ſort, and preſents the farmer with ſo admirable a view of good paſture for dairy or grazing, where ſo lately nothing could live, as is to be equalled in ſcarce any thing of the kind.

" But as all improvement ceaſes to be ſuch when more money is ſpent in it than the advantages will repay, I ſhall in a few words diſplay how far this is from being the caſe here. I will ſuppoſe two or three fields are improved, amounting in the whole to twenty acres,

	l.	s.	d.
" Sixty loads of clay per acre thrown out of the ditches, twelve hundred loads, at two-pence half-penny per load —	12	0	0
" I will ſuppoſe ſixty rod of new ditching done, which, before clay is thrown out by the load, will coſt one ſhilling per rod —	3	0	0
" Three thouſand quickſets at ſix-pence per hundred	0	15	0
" Land-draining ſeven hundred rods with buſhes (this is the quantity I have now marked out in a field of twenty acres) at ten-pence per rod	29	3	4
" N. B. I had a great part of my laſt crop of barley killed in this field with the wet: I had therefore a fine opportunity of marking exactly where the drains ſhould be made, which ought, on ſuch occaſions, never to be omitted, were it only for the common water-furrows which are made for every crop. In ſome fields, unleſs ſuch a guide offers, it is very difficult to tell exactly where to make the land-drains.			
" Turning and mixing one thouſand ſix hundred loads of manure — — —	6	8	0
" Filling and ſpreading one thouſand ſix hundred loads, at two ſhillings and ſix-pence per ſcore — —	10	0	0
" I will ſuppoſe that the work may be done the ſooner if the farmer brings one hundred loads of the four hundred of dung from the neareſt town; and as I have not reckoned the horſes and driver for the clay cart, I ſhall not in the bringing the dung: therefore the expences per waggon load will be, the coſt three ſhillings, boy ſix-pence, and turnpike ſix-pence. A waggon load is two tumbrel loads (in this country) ſo fifty loads, at four ſhillings, are —	10	0	0
Total	71	6	4

" This is three pounds eleven ſhillings and three-pence per acre: and ſuppoſing the profit to laſt but twenty years, although the draining and ditching part will laſt twice that time, and the clay five and twenty as good as at firſt; and the farmers hereabouts ſeldom change their farms, if tolerable ones, living in them their lives, and their ſons after them, with leaſes of 17, 21, and 25 years; ſuppoſing twenty years profit, I ſay, the expences will then be, per acre, per annum, three ſhillings and ſix-pence halfpenny.

" So ſmall is the expence divided. But now let us conſider the profit.

" Such land as I have deſcribed never lets here for more than ten ſhillings per acre, by far oftener for eight ſhillings, or eight and ſix-pence; and it is from my own experience, as well as

as various obſervations, that I aſſert the ſame land, after the improvements, will let to any tenant for ſeventeen, eighteen, and twenty ſhillings per acre.

" I will ſuppoſe it only ſixteen ſhillings, though I am certain that is conſiderably under the mark: he then gains, in point of rent, ſix ſhillings per acre; and the whole calculation is abſurd, if we do not add his whole proportionable profit on the acre: ſuppoſing his profit on it before improvement was a rent, ten ſhillings; afterwards, it will undoubtedly be the ſame at leaſt; which adds ſix ſhillings more to the profit; ſo that the whole will be twelve ſhillings per acre per annum, or eight ſhillings and ſix-pence clear, after the improvement is paid.

	£.
" Twelve ſhillings per acre is per annum, for twenty years —	240
" Expences of improvement -	71
" Clear profit ——	169

" Or eight pounds nine ſhillings per annum. And if we reckon five per cent. intereſt for the ſeventy one pounds, that is, three pounds eleven ſhillings per annum, which, deducted from eight pounds nine ſhillings, leaves four pounds eighteen ſhillings per annum abſolute profit.

" Thus, I think, I have ſtated the caſe of this improvement clearly; and I muſt repeat it, that I ſpeak from experience. The ſum to be expended on twenty acres will appear large to moſt farmers, whoſe property is not conſiderable; but the proportion holds for a ſingle acre; and thoſe who cannot afford to improve twenty, may three, four, or five; and I make no doubt but ſuch as attempt it will find their account in it greater than I have ſtated it.

" As I have mentioned a tumbrel-load to be thirty buſhels, and a waggon load to be but two tumbrels, I ſhould obſerve that we carry away of muck fifty buſhels at a time in our tumbrels, and ſo agree with our men in proportion to the thirty buſhel loads.

" I have obſerved, that in making new ditches, or enlarging old ones, I never pay by the rod, but by the load: however, to thoſe who chuſe the former way, I would recommend that they have them worked by a frame of ſmall ſlit deal, nailed into the exact ſize of the intended ditch, and agree with the workmen to do their work by it: This will prevent diſputes which frequently ariſe."

PATIENCE, A ſpecies of the dock. Monk's Rhubarb.

PEA, [*Piſum.*] The ſpecies are 1. The greater garden pea; 2. the dwarf pea; 3. the roſe or crown pea; 4. the ſea pea; 5. Cape-horn pea; 6. the winged pea.

There is a great variety of garden peaſe now cultivated in England, which are diſtinguiſhed by the gardeners and ſeedſmen, and have their different titles; but as great part of theſe have been ſeminal variations, ſo if they are not very carefully managed, by taking away all thoſe plants which have a tendency to alter before the ſeeds are formed, they will degenerate into their original ſtate; therefore all thoſe perſons who are curious in the choice of their ſeeds, look carefully over thoſe which they deſign for ſeeds at the time when they begin to flower, and draw out all the plants which they diſlike from the other. This is what they call roguing their peas, meaning hereby, the taking out all the bad plants from the good, that the farina of the former may not impregnate the latter; to prevent which, they always do it before the flowers open; by thus diligently drawing out the bad, reſerving thoſe which come earlieſt to flower, they have greatly improved their peaſe of late years, and are conſtantly endeavouring to get forwarder varieties; ſo that it would be to little purpoſe in this place, to attempt giving a particular account of all the varieties now cultivated; therefore we ſhall only mention their titles, by which they are commonly known, placing them according to their time of coming to the table, or gathering for uſe.

The Golden Hotſpur.
The Charlton. ——
The Reading Hotſpur.
Maſters's Hotſpur.
Eſſex Hotſpur.
The Dwarf Pea.
The Sugar Pea.
Spaniſh Morotto.
Nonparcil.
Sugar Dwarf.
Sickle Pea.
Marrowfat.

Roſe, or Crown Pea.
Rouncival Pea.
Grey Pea.
Pig Pea, with ſome others.

The Sea pea is found wild upon the ſhore in Suſſex, and ſeveral other counties in England, and is undoubtedly a different ſpecies from the common pea.

The fifth ſort hath a biennial root, which continues two years. This was brought from Cape Horn by Lord Anſon's cook, when he paſſed that Cape, where the peaſe was a great relief to the ſailors. It is kept here as a curioſity, but the peaſe are not ſo good for eating as the worſt ſort now cultivated in England; it is a low trailing plant; the leaves have two lobes on each foot-ſtalk; thoſe below are ſpear-ſhaped, and ſharply indented on their edges, but the upper leaves are ſmall and arrow pointed. The flowers are blue, each foot-ſtalk ſuſtaining four or five flowers; the pods are taper, near three inches long, and the ſeeds are round, about the ſize of tares.

The ſixth ſort is annual. This grows naturally among the corn in Sicily, and ſome parts of Italy, but is here preſerved in botanic gardens for the ſake of variety. It hath an angular ſtalk riſing near three feet high; the leaves ſtand upon winged foot-ſtalks, each ſuſtaining two oblong lobes. The flowers are of a pale yellow colour, ſhaped like thoſe of the other ſorts of pea, but are ſmall, each foot-ſtalk ſuſtaining one flower; theſe are ſucceeded by pods about two inches long, containing five or ſix roundiſh ſeeds, which are a little compreſſed on their ſides. Theſe are by ſome perſons eaten green, but unleſs they are gathered very young they are coarſe, and at beſt not ſo good as the common pea. It may be ſown and managed in the ſame way as the garden pea.

We ſhall now proceed to ſet down the method of cultivating the ſeveral ſorts of garden peaſe, ſo as to continue them throughout the ſeaſon.

It is a common practice with the gardeners near London, to raiſe peaſe upon hot-beds, to have them very early in the ſpring; in order to which they ſow their peaſe upon warm borders, under walls or hedges, about the middle of October; and when the plants come up, they draw the earth up gently to their ſtems with a hoe, the better to protect them from froſt. In theſe places they let them remain until the latter end of January, or the beginning of February, obſerving to earth them up from time to time as the plants advance in height (for the reaſon before given;) as alſo to cover them in very hard froſt with peaſe-haulm, ſtraw, or ſome other light covering, to preſerve them from being deſtroyed; then, at the time before-mentioned, they make a hot-bed (in proportion to the quantity of peaſe intended) which muſt be made of good hot dung, well prepared and properly mixed together, that the heat may not be too great. The dung ſhould be laid from two to three feet thick, according as the beds are made earlier or later in the ſeaſon; when the dung is equally levelled, then the earth (which ſhould be light and freſh, but not over rich) muſt be laid thereon about ſix or eight inches thick, laying it equally all over the bed. This being done, the frames (which ſhould be two feet high on the back ſide, and about fourteen inches in front) muſt be put on, and covered with glaſſes; after which it ſhould remain three or four days, to let the ſteam of the bed paſs off, before you put the plants therein, obſerving every day to raiſe the glaſſes, to give vent for the riſing ſteam to paſs off; then, when you find the bed of a moderate temperature for heat, you ſhould, with a trowel or ſome other inſtrument, take up the plants as carefully as poſſible, to preſerve the earth to their roots, and plant them into the hot-beds in rows, about two feet aſunder, and the plants about an inch diſtant from each other in the rows, obſerving to water and ſhade them until they have taken root; after which you muſt be careful to give them air at all times when the ſeaſon is favourable, otherwiſe they will draw up very weak, and be ſubject to grow mouldy and decay. You ſhould alſo draw the earth up to the ſhanks of the plants as they advance in height, and keep them always clear from weeds. The water they ſhould have muſt be given them ſparingly, for if they are too much watered, it will cauſe them to grow too rank, and ſometimes rot off the plants at their ſhanks, juſt above ground. When the weather is very hot, you ſhould cover the glaſſes

glaſſes with mats in the heat of the day, to ſcreen them from the violence of the ſun, which is then too great for them: but when the plants begin to fruit, they ſhould be watered oftner, and in greater plenty than before; for by that time the plants will have nearly done growing, and the often refreſhing them will occaſion their producing a greater plenty of fruit.

The ſort of pea which is generally uſed for this purpoſe, is the dwarf, for all the other ſorts ramble too much to be kept in frames. The reaſon for ſowing them in the common ground, and afterwards tranſplanting them on a hot-bed, is to check their growth, and cauſe them to bear in leſs compaſs; for if the ſeeds were ſown upon a hot-bed, and the plants continued thereon, they would produce ſuch luxuriant plants as are not to be contained in the frames, and would bear but little fruit.

The next ſort of pea, which is ſown to ſucceed thoſe on the hot-bed, is the hotſpur, of which there are reckoned ſeveral varieties; as the Golden hotſpur, the Charlton hotſpur, the Maſters's hotſpur, the Reading hotſpur, and ſome others; which are very little differing from each other, except in their early bearing, for which the Golden and Charlton hotſpurs are chiefly preferred; though if either of theſe ſorts are cultivated in the ſame place for three or four years, they are apt to degenerate, and be later in fruiting; for which reaſon, moſt curious perſons procure their ſeeds annually from ſome diſtant place; and in the choice of theſe ſeeds, if they could be obtained from a colder ſituation and a poorer ſoil, than that in which they are to be ſown, it will be much better than on the contrary, and they will come earlier in the ſpring.

Theſe muſt alſo be ſown on warm borders, toward the latter end of October; and when the plants are come up, you ſhould draw the earth up to their ſhanks in the manner before directed, which ſhould be repeated as the plants advance in height (always obſerving to do it when the ground is dry) which will greatly protect the ſtems of the plants againſt froſt; and if the winter ſhould prove very ſevere, it will be of great ſervice to the plants to cover them with peaſe-haulm, or ſome other light covering, which ſhould be conſtantly taken off in mild weather, and only ſuffered to remain on during the continuance of the froſt; for if they are kept too cloſe, they will draw up very weak and tender, and thereby be liable to be deſtroyed with the leaſt inclemency of the ſeaſon.

In the ſpring, you muſt carefully clear them from weeds, and draw ſome freſh earth up to their ſtems, but do not raiſe it too high to the plants, leſt by burying their leaves you ſhould rot their ſtems, as is ſometimes the caſe, eſpecially in wet ſeaſons. You ſhould alſo obſerve to keep them clean from vermin, which, if permitted to remain amongſt the plants, will increaſe ſo plentifully, as to devour the greateſt part of them. The chief of the vermin which infeſt peaſe, are the ſlugs, which lie all the day in the ſmall hollows of the earth, near the ſtems of the plants, and in the night-time come out, and make terrible deſtruction of the peaſe; and theſe chiefly abound in wet ſoils, or where a garden is neglected, and over-run with weeds; therefore you ſhould make the ground clear every way round the peaſe to deſtroy their harbours; and afterwards, in a fine mild morning very early, when theſe vermin are got abroad from their holes, you ſhould ſlack a quantity of lime, which ſhould be ſtrewn hot over the ground pretty thick, which will deſtroy the vermin wherever it happens to fall upon them, but will do very little injury to the peaſe, provided it be not ſcattered too thick upon them. This is the beſt method I could ever find to deſtroy theſe troubleſome vermin.

If this crop of peaſe ſucceeds, it will immediately follow thoſe on the hot-bed; but for fear this ſhould miſcarry, it will be proper to ſow two more crops at about a fortnight or three weeks diſtance from each other, ſo that there may be the more chances to ſucceed. This will be ſufficient until the ſpring of the year, when you may ſow ſeveral more crops of theſe peaſe at a fortnight diſtance from each other The late ſowings will be ſufficient to continue the early ſort of peaſe through the ſeaſon, but it will be proper to have ſome of the large ſort of peaſe to ſucceed them for the uſe of the family in order to which, you ſhould ſow

ſome of the Spaniſh Morotto, which is a great bearer, and a hardy ſort of pea, about the middle of February, upon a clear open ſpot of ground. Theſe muſt be ſown in rows about four feet aſunder, and the peaſe ſhould be dropped in the drills about an inch diſtance, covering them about two inches deep with earth, being very careful that none of them lie uncovered, which will draw the mice, pigeons, or rooks, to attack the whole ſpot; and it often happens, by this neglect, that a whole plantation is devoured by theſe creatures; whereas, when there are none of the peaſe left in ſight, they do not ſo eaſily find them out.

About a fortnight after this you ſhould ſow another ſpot, either of this ſort, or any other large ſort of Pea, to ſucceed theſe, and then continue to repeat ſowing once a fortnight, till the middle or latter end of May, only obſerving to allow the Marrowfats, and other very large ſorts of peaſe, at leaſt four feet and a half between row and row; and the roſe pea ſhould be allowed at leaſt eight or ten inches diſtance, plant from plant in the rows; for theſe grow very large, and if they have not room allowed them, they will ſpoil each other by drawing them up very tall, and will produce no fruit.

When theſe plants come up, the earth ſhould be drawn up to their ſhanks (as was before directed,) and the ground kept entirely clear from weeds; and when the plants are grown eight or ten inches high, you ſhould ſtick ſome bruſh-wood into the ground cloſe to the peaſe for them to ramp upon, which will ſupport them from trailing upon the ground, which is very apt to rot the large growing ſorts of peaſe, eſpecially in wet ſeaſons; beſides, by thus ſupporting them, the air can freely paſs between them, which will preſerve the bloſſoms from falling off before their time, and occaſion them to bear much better, than if permitted to lie upon the ground, and there will be room to paſs between the rows to gather the peaſe when they are ripe.

The Dwarf ſorts of peaſe may be ſown much cloſer than thoſe before-mentioned, for theſe ſeldom riſe above a foot high, and rarely ſpread above half a foot in width, ſo that theſe need not have more room than two feet row from row, and not above an inch aſunder in the rows. Theſe will produce a good quantity of peaſe, provided the ſeaſon be not over-dry; but they ſeldom continue long in bearing, ſo that they are not ſo proper to ſow for the main crop, when a quantity of peaſe is expected for the table, their chief excellency being for hot-beds, where they will produce a greater quantity of peaſe (provided they are well managed) than if expoſed to the open air, where the heat of the ſun ſoon dries them up.

The Sickle pea is much more common in Holland than in England, it being the ſort moſtly cultivated in that country; but in England they are only propagated by curious gentlemen for their own table, and are rarely brought into the markets. This ſort the birds are very fond of, and if they are not prevented, many times deſtroy the whole crop. This ſhould be planted in rows about two feet and a half aſunder, and be managed as hath been directed for the other ſorts.

Although we have directed the ſowing of the large ſorts of peaſe for the great crop, yet theſe are not ſo ſweet as the early hotſpur peaſe; therefore it will alſo be proper to continue a ſucceſſion of thoſe ſorts through the ſeaſon, in ſmall quantities, to ſupply the beſt table, which may be done by ſowing every fortnight; but all thoſe which are ſown late in the ſeaſon ſhould have a ſtrong moiſt ſoil, for in hot light land they will burn up, and come to nothing.

The large growing ſorts may be cultivated for the common uſe of the family, becauſe they will produce in greater quantities than the other, and will endure the drought better, but the early kinds are by far the ſweeter taſted peaſe.

The beſt of all the large kinds is the Marrowfats, which, if gathered young, is a well-taſted pea; and this will continue good through the month of Auguſt, if planted on a ſtrong ſoil.

The Grey and other large Winter peaſe are ſeldom cultivated in gardens, becauſe they require a great deal of room, but are uſually ſown in fields in moſt parts of England. The beſt time for ſowing of theſe is about the beginning of March, when the weather is pretty dry, for if they are put into the ground in a very wet ſeaſon, they are

apt to rot, eſpecially if the ground be cold; theſe ſhould be allowed at leaſt three feet diſtance row from row, and muſt be ſown very thin in the rows; for if they are ſown too thick, the haulm will ſpread ſo as to fill the ground, and ramble over each other, which will cauſe the plants to rot, and prevent their bearing.

The common white pea will do beſt on light ſandy land, or on a rich looſe ſoil. The uſual method of ſowing theſe peaſe is with a broad-caſt, and ſo harrow them in: but it is a much better way to ſow them in drills about three feet aſunder, for half the quantity of ſeed will do for an acre, and being ſet regularly, the ground may be ſtirred with a hoe to deſtroy the weeds, and earth up the peaſe, which will greatly improve them, & the peaſe may be much eaſier cut in autumn when they are ripe. The uſual time for ſowing of theſe peaſe is about the middle or latter end of March, on warm land, but on cold ground, they ſhould be ſown a fortnight or three weeks later. In the common way of ſowing, they allow three buſhels or more to an acre, but if they are drilled, one buſhel will be full enough.

The green and maple Rouncivals require a ſtronger ſoil than the white, and ſhould be ſown early in the ſpring; alſo the drills ſhould be made at a greater diſtance from each other, for as theſe are apt to grow rank, eſpecially in a wet ſeaſon, they ſhould be ſet in rows three feet and a half, or four feet aſunder; and the ground between the rows ſhould be ſtirred two or three times with a hoe, which will not only deſtroy the weeds, but, by earthing up the peaſe, greatly improve them, and alſo render the ground better to receive whatever crop is put on it the following ſeaſon.

The grey peaſe thrive beſt on a ſtrong clayey land; theſe are commonly ſown under furrow, but by this method they are all always too thick, and do not come up regular; therefore all theſe rank-growing plants ſhould be ſown in drills, where the ſeeds will be more equally ſcattered, and lodged at the ſame depth in the ground; whereas in the common way, ſome of the ſeeds lie twice as deep as others, and are not ſcattered at equal diſtances. Theſe may be ſown toward the end of February, as they are much hardier than either of the former ſorts, but the culture of theſe ſhould be the ſame.

The beſt method to ſow theſe peaſe is to draw a drill with a hoe by a line about two inches deep, and then ſcatter the ſeeds therein; after which, with a rake, you may draw the earth over them, whereby they will be equally covered: this is a very quick method for gardens, but where they are ſown in fields, they commonly make a ſhallow furrow with the plough, and ſcatter the ſeeds therein, and then with a harrow they cover them over again. After this, the great trouble is to keep them clear from weeds, and draw the earth up to the plants; this, in ſuch countries where labour is dear, is a great expence to do it by the hand with a hoe; but this may be eaſily effected with a ſmall plough, which may be drawn through between the rows, which will entirely eradicate the weeds, and by ſtirring the ſoil, render it mellow, and greatly promote the growth of the plants.

When any of theſe ſorts are intended for ſeed, there ſhould be as many rows of them left ungathered, as may be thought neceſſary to furniſh a ſufficient quantity of ſeed; and when the peaſe are in flower, they ſhould be carefully looked over to draw out all thoſe plants which are not of the right ſort, for there will always be ſome roguiſh plants (as the gardeners turn them) in every ſort, which, if left to mix, will degenerate the kind. Theſe muſt remain until their pods are changed brown, and begin to ſplit, when you ſhould immediately gather them up, together with the haulm; and if you have not room to ſtack them till winter, you may threſh them out as ſoon as they are dry, and put them up in ſacks for uſe; but you muſt be very careful not to let them remain too long abroad after they are ripe, for if wet ſhould happen, it would rot them, and heat, after a ſhower of rain, would cauſe their pods to burſt, and caſt forth their ſeeds, ſo that the greateſt part of them would be loſt; but it is not adviſeable to continue ſowing the ſame ſeed longer than two years, but rather to exchange their ſeeds every year, or every two years at leaſt, whereby you may always expect to have them prove right.

term

PEACH-TREE,

PEACH-TREE, [*Malus Perſica.*] The varieties of peaches are very great, and by continuing to raiſe them from the ſeed or kernel, they may be multiplied indefinitely. It is to be obſerved, however, that notwithſtanding the number of varieties that may be obtained that way, it is probable not one in twenty is poſſeſſed of the proper qualities, as is obvious by the cultivated ſorts now known in England; for moſt of the eminent nurſery-men retain no more than from twenty to thirty ſorts in their catalogues, which they ſell as real good peaches. Some indeed extend them to 40 or 50; but among theſe there are many of very indifferent qualities, and not worth the ſpace they occupy; and ſince it is not more expence to cultivate the beſt than the more indifferent ones, the firſt only deſerve our regard; and as all the ſorts require to be trained againſt walls, the expence of building them is very conſiderable, and a good aſpected wall is too valuable to be filled with any but the capital ſorts.

Theſe fruit are divided into two claſſes, viz. peaches and pavies; the former are diſtinguiſhable by the fleſh or pulp readily quitting the ſtone, that of the latter firmly adheres thereto.

Botaniſts allow only one diſtinct ſpecies of peach-trees; all the different ſorts of fruit being varieties of one another, ſo that the trees of all the varieties bear the particular marks of the original ſpecies. Varieties are,

1. The early white nutmeg peach; a very ſmall oblong whitiſh fruit, ripe in July. 2. Early red nutmeg; a ſmall, roundiſh, bright red fruit, ripe the end of July. 3. Anne peach; a ſmall, round, & yellowiſh, white fruit, early in Aug. 3. Small mignon peach; a ſmall, and round fruit, red towards the ſun, ripe the middle of Auguſt. 5. Great mignon peach; large, round, ſwelling on one ſide, and beautifully ſpotted with red to the ſun; middle of Auguſt. 6. Early purple peach; large and round; middle of Auguſt. 7. Late purple; ripe the middle of September. 8. White magdalen peach; round, middle-fized, whitiſh, and deeply furrowed on one ſide; early in Auguſt. 9. Red magdalen; a beautiful large, round, red fruit; end of Auguſt. 10. Early Newington peach; roundiſh, middle-fized, and red to the ſun; in Auguſt. 11. Old late Newington peach; middle of September. 12. Montauban peach; middle-fized, roundiſh, purple, and cleft on one ſide; end of Auguſt. 13. Belle chevreuſe peach; middle-fized, oblong red; end of Auguſt. 14. Nobleſſe; large, roundiſh, marbled with a purpliſh red; September. 15. Yellow Alberge peach; middle-fized, longiſh, yellow-fleſhed fruit; middle of Auguſt. 16. Belle-garde peach; roundiſh, and almoſt wholly of a deep purple colour; beginning of September. 17. Chancellor peach; a large, ſomewhat oblong, bright red fruit; September. 18. La Teton de Venus, or breaſt of Venus peach; a pretty large, ſomewhat longiſh fruit, deeply divided on one ſide, both diviſions ſwelling and rounded like a woman's breaſt, and of a pale red colour on the ſunny ſide; the end of September. 19. Roſſana peach; a middle-fized, ſomewhat oval fruit, purple next the ſun; early in September. 20. Perſique peach; a fine large, roundiſh, and ſomewhat oblong fruit, terminated at top by a ſmall nipple, having the ſunny ſide red, the other pale green; early in October. 21. Admirable peach; a very large, round fruit, beautifully adorned with red next the ſun; middle of September. 22. Rambouillet peach; a large, longiſh, deeply-furrowed fruit, the ſunny ſide beautifully reddened, the other yellow; towards the end of September. 23. La Royale, or royal peach; a large, round, almoſt wholly red fruit, but deeply reddened next the ſun; end of September. 24. Bourdine peach; a large, round, very fine fruit, bright red on the ſunny ſide; ripe beginning or middle of September. 25. Bloody peach; a middle fized, deep red fruit next the ſun, and its whole pulp of a blood red colour; late in October. 26. Nivette peach; a very fine, large, longiſh, deep purple fruit next the ſun; middle of September. 27. Portugal peach; a large, round, even peach, generally ſpotted, and the ſunny ſide elegantly red; end of September. 28. Royal George peach; a middle-fized, round peach, furrowed on one ſide, of a deep red next the ſun, the other part white, ſpotted with red; early in September. 29. Violet peach; a middle-fized, roundiſh, oval, violet-coloured peach; the middle of September. 30. Catharine peach; a beautiful, very large,

large, round peach, the ſunny ſide wholly of a fine bright red, the other ſide white; ripens in October. 31. Monſtrous pavie of Pomponne; an amazingly large and beautiful peach, the ſhape round, and often meaſures twelve or fourteen inches in circumference; the ſide next the ſun deeply red, and the other a pale fleſh colour; the end of October. 32. Cambray peach; middle-ſized, longiſh, pale-coloured; in October. 33. Sion peach; a large, handſome, round peach, reddiſh on the ſunny ſide, the other ſide whitiſh; ripe end of September. 34. Narbonne peach; a very large peach, of a greeniſh colour; ripe in October.

The above thirty-four varieties of peaches are the principal ſorts of that univerſally admired fruit, known in Great-Britain; and the name here annexed to each variety is that by which they are generally known to all the nurſery-men, who cultivate the trees for ſale, to ſupply noblemen and gentlemen's gardens.

Many of the above varieties approach ſo near to one another in ſize, ſhape, and colour, that it is ſometimes difficult to determine their difference without the ſtricteſt attention.

We do not pretend to recommend all theſe varieties as real good peaches, but for the ſake of thoſe who have large extent of walling, have collected all the principal ſorts to view, with ſhort deſcriptions of their ſizes, ſhapes, colours, and times of ripening, which it is preſumed will convey ſome idea of the reſpective varieties to the unexperienced, and help to direct him in the choice of the ſorts.

The ſorts that have the greateſt claim to eſteem, as the beſt and moſt beautiful, both in regard to ſize, ſhape, colour, flavour, and the beſt bearers, are the following:

The Anne peach, ſmall mignon, great mignon, red Magdalen, belle garde, belle chevrueſe, mountauban, admirable, early Newington, late Newington, bourdine, nivette, la royale, purple, teton de Venus, Catharine, and great pavie of Pomponne; the latter chiefly for its prodigious ſize and beauty, and, as a pickle, it ſurpaſſes all the other ſorts.

The two nutmeg peaches, though of ſmall ſize and indifferent flavour, eſpecially the white for that reaſon account of their early perfection, ſhould alſo be allowed a place in the collection.

The bloody peach merits a place more for ſingularity, than for the quality of the fruit.

The two Newington peaches, Portugal, Catharine, and monſtrous pavie, may be deemed of the pavie tribe, their fleſh adhering cloſely to the ſtone. The old Newington and Catharine are eſteemed two of the moſt valuable peaches that are cultivated in England.

Peach trees in general will grow 15 or 20 feet high, if they have full ſcope; and if trained for ſtandards, and permitted to take their natural growth, they form regular heads, but they do not ripen their fruit well on ſtandards in this country, they being natives of a much warmer climate; ſo that, to effect the ripening of their fruit perfectly, they require the ſhelter of a warm wall, to which their branches ſhould be regularly trained.

The trees in general flower early in ſpring; the flowers come out before the leaves, appearing chiefly on the ſhoots laſt year, ariſing ſome ſingly, others in pairs, all along the ſides of the ſhoot, to which they ſit cloſe; they are formed each of five ſmall petals, and many ſtamina in the middle, with a ſmall round germen, which becomes the peach.

The general propagation of peach-trees is effected by budding them upon plum-ſtocks.

But all the fine varieties of theſe fruit were originally obtained from the ſeed or kernel, and more new varieties may be gained by that means; but the proceſs is ſomewhat tedious, and often terminates in but trifling ſucceſs, in reſpect to the quality of the fruit ſo obtained; for if you plant the ſtones of the fineſt ſorts, it is a thouſand to one, if, out of a great number, you obtain one like the originals, and but few that have any real merit, ſo greatly do theſe, and indeed all other fruits, vary from the ſeed. However, for the ſake of experiment, there are many who have curioſity and patience enough to undertake the acquiſition of new varieties by the above methods, and think themſelves amply rewarded if they gain one or two new ſorts that poſſeſs good qualities in reſpect to ſize, form, colour, and flavour.

The method of planting the ſtones for

for that purpoſe, is, they ſhould be planted in autumn, in drills about two or three inches deep, and in ſpring following they will come up, and after having one ſummer's growth, they ſhould, in autumn or ſpring following, be tranſplanted in rows in the nurſery, and in a year or two after may be planted againſt any ſpare wall, pales, or reed fence, and trained as other peach-trees; and when they have ſhown fruit, thoſe of merit ſhould be planted where they are to remain, which you may propagate or encreaſe by budding, as hereafter directed.

The only method of propagation, however, to continue, with certainty, the approved or any acquired ſorts of peaches, is by budding, i. e. inoculation; ſince, by inoculating the bud of a tree of any of the kinds, in the ſtem or ſtock of any ſort of peach, almond, or plumb, the bud unites with the ſaid ſtock, the head of which being cut off, the bud ſhoots forth, branches out, and becomes a peach-tree, which will produce fruit in ſize, ſhape, colour, and flavour, exactly the ſame as that of the parent tree from whence the bud was taken, and by whichmeans you may multiply any of the ſorts of peaches, and other fruit trees at pleaſure, and with certainty; and beſides, trees thus raiſed, much ſooner attain a bearing ſtate than thoſe from the kernels.

Peaches, as above hinted, may be budded upon three or four different ſtocks, viz. upon thoſe raiſed from their own kernels, upon the almond, apricot, and plumb.

There is however but one ſort of ſtock proper for general uſe whereon to bud peaches, which is that of the plumb; the peach, the almond, and apricot ſtocks, are often attacked by the gum, and communicate it to the trees juſt as they arrive at a ſtate of full bearing, and quickly go off; whereas, the plumb ſtock being in every reſpect hardier, and better ſuited to different ſoils, peaches budded upon them are generally healthful, and of long duration; obſerving, however, that experience has proved them to be the moſt proſperous and durable on one particular ſort, which is that of the true muſcle plumb.

The propagation or raiſing ſtocks from the varieties of plumbs indifferently, as alſo of peaches, almonds, and apricots, may with great eaſe be effected by ſowing the ſtones of the fruit in autumn, in drills two inches deep, and they will riſe freely the ſpring following; and in October they may be tranſplanted in rows two feet and half diſtant, and in the two following ſummers, thoſe that are intended to form dwarfs, may be inoculated with peach buds.

But in reſpect to the real muſcle-plumb ſtock, this cannot be obtained in its true ſtate from the ſtones, for they vary ſo greatly when raiſed from ſeed, that not one in a hundred will prove of that ſort; therefore, the only method to obtain the true muſcle kind is either by layers in autumn, or by ſuckers that are ſent up from the roots of peach or plumb trees, that are known to be worked upon that ſort of plumb. Theſe ſhould be collected in October or November; chuſe thoſe that are about the ſize of a large gooſe-quill; cut off any knots of old wood that adhere to their roots, and trim off all ſide-branches, and plant them in lines two feet and half diſtant, and in the following ſummer ſome will be fit to bud for dwarfs.

The proper ſized ſtocks to bud upon to form dwarfs, ſhould be about half an inch thick.

But if intended to form half or full ſtandards, the ſtocks, before they are budded, muſt be permitted to form ſtems an inch thick at bottom, and four, five, or ſix feet in height. The ſeaſon for budding them is Auguſt, tho' ſome perform that work in June and July; but when budded too early, the buds are apt to ſhoot the ſame year, which ſhoots, being weakly, are either killed in winter, or, if they eſcape the froſt, they never make great progreſs; therefore, from about the 25th of July to the 25th of Aug. is the proper period for that operation, and the buds will remain dormant till ſpring, when they will ſhoot forth with vigour.

The method of performing the operation of budding, and every thing relating thereto for thoſe and other trees, is fully explained under that article. See *Inoculating*.

We ſhall therefore only obſerve, that as Peach-trees require to be trained againſt walls, &c. they ſhould be budded principally to form dwarfs, that their

their branches may at firſt come out low, ſo as they may by degrees be trained to occupy every part of the wall, from bottom to top; the ſtocks ſhould therefore be budded within five or ſix inches of the bottom, but where there are high walls to furniſh, it is neceſſary alſo to raiſe half-ſtandards and ſtandards, to occupy the upper part, while the dwarfs are gradually advancing to cover the whole; the ſtocks, to conſtitute ſuch ſtandards, ſhould for half-ſtandards be budded at the height of three or four feet, and for full ſtandards at that of five or ſix, or they may be budded near the ground, and the firſt ſhoot from the bud trained to the above heights to form a ſtem.

Obſerve to inſert only one bud in each ſtock, the heads of which are to remain on entire until ſpring.

In March following, the heads of all the ſtocks are to be cut off ſloping, juſt above where the bud is inſerted.

Soon after this the buds will ſhoot forth, each will produce one ſtrong erect ſhoot, which, by autumn, will probably attain three or four feet in height, and the trees have then acquired their firſt ſtate of formation, which, in October or November, ſhould be tranſplanted in the places where they are finally to remain; and in the ſpring after that, they muſt be headed down to a few eyes, to procure laterals near the place of inoculation, to give the tree its ſuitable form for the wall, and in two or three years they will bear fruit.

With reſpect to ſituation and expoſure, the peach-tree being originally a native of warm climates, is, in ſome reſpects, tender, and will not proſper, at leaſt not bear well, in an open ſituation; ſo that for the general part, require to be trained againſt walls.

The trees themſelves, though hardy enough in reſpect to cold, yet the bloſſom and young fruit are extremely impatient of froſt & cutting winds, which generally reign in this country at early ſpring, when the trees bloom and ſet their fruit: the trees, therefore, ſhould be indulged with the ſhelter of a warm wall, or other ſubſtantial cloſe fence, to which they ſhould be planted cloſe, and their branches regularly trained, which is neceſſary, not only to defend the bloſſom and young fruit the better from the inclemency of the weather, but alſo that they may have all the advantages of the ſun's influence, to accelerate its ripening, as well as to give it colour and flavour, which many ſorts, even with all the aid in our power to give, hardly effect in unfavourable ſeaſons in this country.

The proper aſpected walls, or expoſure for the fine ſorts, is that of a due ſouth; ſome may alſo be planted upon an eaſt aſpected wall, and in favourable ſeaſons the trees will alſo ſometimes ſet and ripen fruit tolerably on a weſtern aſpect. However, where there is walling enough, let the capital ſorts be always planted againſt ſuch walls as enjoy the greateſt degree of the ſouth ſun, as even that aſpect, in ſome ſeaſons, is barely ſufficient to ripen ſome of the late ſorts of theſe fruit, in any part of this iſland.

Such of the forward kinds that you deſire as early as poſſible, ſhould have the warmeſt ſituation on the beſt ſouth wall, which, though ſome are inferior in ſize and flavour, yet when obtained at the earlieſt ſeaſon, they are highly acceptable as a rarity in the deſert.

With reſpect to ſoil, the peach-tree will proſper in any common ſoil of a garden, where it is not leſs than fifteen or eighteen inches depth of proper ſtaple, that is ſuch as is proper for the culture of common kitchen herbage, and where moiſture is not very copious; but if the depth of good ſoil in the fruit-tree borders is two or three feet, it will be the greater advantage.

The breadth of the borders againſt the walls where it is intended to plant theſe trees, ſhould never be leſs than three, but thoſe of ſix or eight feet are the moſt proper width.

If the natural ſoil of the borders is of a moderately light, pliable nature, and of proper depth, it is a happy circumſtance; and if it is of a loamy temperature, it will alſo be a particular advantage, provided however there is ſuch depth of proper ſtaple as above noticed, before you come at gravel, clay, or any other bad ſoil at bottom, when nothing more than common digging is neceſſary; but where there is leſs than that depth, the borders muſt be raiſed with a due portion of good freſh earth and rotten dung, working the whole well together.

Where good rich or pliable loam could be eaſily obtained from the ſur-

face of ſome contiguous paſture, common, or other field, and with ſtore of rotten dung, working or blending the whole with the natural ſoil of the border to the proper depth, it would form a fine compoſt, and the trees will proſper, and be of long continuance.

But if the ſoil is naturally ſtiff and clayey, or of any other ſtubborn or very moiſt nature, it may be mellowed by adding dry ſubſtances, ſuch as coal aſhes, drift ſand, road ſoil, and other ſimilar materials, and plenty of rotten dung, working the whole with the natural ſoil to the above depth.

Where any one is ſo happy to poſſeſs a ſoil whoſe natural goodneſs renders all foreign aſſiſtance unneceſſary, no more need be done than digging the borders one or two ſpades deep, and it is fit for the reception of the trees.

The ſeaſon for planting is October and November, or even any time in open weather till March, in dry warm ſoils; but in moiſt or wet ſoils, we prefer the ſpring for that work.

Peach-trees, and, in ſhort, all others that are deſigned for walls, ſhould be planted in their places of final deſtination when they are one year old, that is when their heads are of one ſummer's growth from the bud, and with their ſaid heads entire for the preſent, that we may have the opportunity of training them from their origin, as it were, and in their proper poſition in the places where they are finally to remain; for the great art in forming a wall-tree depends entirely upon the due pruning and training the two firſt years, after making the firſt ſhoot or head from the budding.

But if any one is in haſte to have his walls covered at once, as it were, with bearing trees, he may be ſupplied with ſuch at moſt of the nurſeries, which are what the nurſery-men call trained trees, which they ſell from five to ten ſhillings per tree, according to the ſorts, ſize, and property of growth. Every one may do as they pleaſe, but we always preferred thoſe of one year from the bud; for theſe reaſons, firſt, that trees of that age ſooner and more firmly eſtabliſh their roots, which is an eſſential point to keep in view; and ſecondly, becauſe we would have the tree under our own management from the beginning, which we always found to be of importance.

The diſtance theſe trees ſhould be planted from one another is fifteen feet, and if the walls are high, half or full ſtandards may be planted between the dwarfs, to occupy the upper part, while the dwarfs grow up to fill that ſpace; for no part of good walls ſhould be left unoccupied.

The rule is this, if the walls are not above ſix or eight feet high, plant none but dwarfs, and theſe at fifteen feet diſtance; if the walls are nine feet high, half ſtandards, of about three or four feet ſtem, may be planted between the dwarfs; and if the walls are ten or twelve feet, or more in height, full ſtandards, of ſix feet ſtem, ſhould be planted to occupy the upper part; and as the dwarfs are to be the principal reſidents, way muſt be made, as their branches gradually advance, by cutting away the lowermoſt ones of the ſtandards by degrees annually, and at laſt, in ſeven, eight, ten, or more years, as you ſhall ſee neceſſary, the ſtandards may be entirely taken away, that the dwarfs may advance, and fill the whole ſpace of walling.

The mode of planting being fixed on, mark out on the walls the diſtances as above for the trees.

Then, having recourſe to the nurſery, let the trees be taken up with all their roots as entire as poſſible, for this is of much importance; the extreme ends of all of which ſhould be tipped, i. e. a little ſhortened, and thoſe of broken or bruiſed ones ſmoothed, preſerving the heads entire for the preſent. Holes or pits are then to be opened, capacious enough to receive the roots freely every way. Place the tree therein, about three inches from the wall, with the bud outward, and then break and trim in the earth regularly between all the roots and ſmall fibres, and tread the whole gently, to fix the whole plant in its proper poſition; then directly tack the head to the wall, or tye it to a ſtake, to ſecure it from the power of boiſterous winds till March, when it is to be headed down.

If the enſuing ſpring or beginning of ſummer ſhould prove very dry, indulge the trees with moderate waterings once or twice a week, according to the drought and heat of the ſeaſon, which will encourage them to puſh out more freely and ſtrong after heading down.

The trees being planted with their firſt

firſt head from the bud entire, as we adviſed; the next neceſſary culture is to perform the operation of heading them down, which is to be done juſt as they begin to ſhoot, and the proper time is March.

This work conſiſts in ſhortening the head, or firſt main ſhoot down within five or ſix eyes of the bud, or place of its origin, ſloping it off on the ſide next the wall, juſt above an eye, which is a neceſſary operation, both to dwarfs, half, and full ſtandards, that are planted againſt walls; that by ſtopping its upright direction, it may throw out ſeveral lateral ſhoots from the remaining lower part to the right and left, and conſtitute the proper foundation for forming a wall-tree, whoſe firſt branches ſhould always proceed on both ſides, from within ſix inches of the place of inoculation, whether dwarfs for the lower part, or ſtandards for the middle and top of the wall; and that if the heading down was omitted, the conſequence would be, the tree would advance with a naked ſtem, and leave almoſt one half of the allotted ſpace of walling unoccupied.

Therefore, pay no regard to the firſt head from the bud, howſoever large and fine it may appear, but cut it down as above; for the general formation of the tree depends entirely upon the form acquired by this practice, and the two ſucceeding years pruning.

The trees being thus headed down, they will ſoon after produce one ſtrong ſhoot from each remaining eye, obſerving that ſuch as proceed immediately from the front and back, are to be conſtantly rubbed off cloſe, but all thoſe that advance from the two ſides are to be preſerved entire, which, in June, when of due length to admit of laying in, ſhould be nailed cloſe to the wall, continuing them thereto at full length during the ſummer.

At the fall of the leaf following, proceed to give them their firſt winter pruning.

This may be done any time from November till March. You are now to examine the number of ſhoots each tree produced the preceding ſummer from the effect of heading down, and to prune them accordingly; for example, if there are two ſhoots, one on each ſide, they are both to be retained; and to encourage their furniſhing a farther ſupply of branches; ſhorten them to eight or ten, or if of very ſtrong growth, to twelve or fifteen inches, and nail them horizontally to the wall.

If there are three ſhoots, the middle one of them is to be cut out cloſe, and ſhorten the other two as above, and nail one to each ſide in a horizontal direction; but if the middle ſhoot of the three be conſiderably weaker than the other two, it may be retained, and nailed in at full length, which probably will furniſh a fruit or two, while the other two are providing a farther neceſſary ſupply of wood; but if is a ſtrong ſhoot, cut it clean away.

If the tree is furniſhed with four ſhoots, two on each ſide, retain them all, and ſhorten them from ten to fifteen inches, according to their ſtrength, as above, and nail them equally to the right and left.

And if there are five ſhoots, and that thoſe on the ſides are ſtrong, and the middle one weak, ſhorten the former as above, and lay them horizontally, and nail in the middle one entire; but if the latter is nearly of equal ſtrength, or ſtronger than the others, cut it clean out, which, if left, would draw the principal part of the nouriſhment, and impoveriſh thoſe of the two ſides, which ſhould now be wholly attended to, for the middle will always furniſh itſelf in due time.

One fundamental rule to be obſerved, is, that your tree, at this period of growth, ſhould, if poſſible, proceed with ſhoots of an equal ſtrength and number on each ſide, and depends principally upon two or four good branches, ſhortened & trained equally to the right and left, in a nearly horizontal direction, which will not fail in their turn to furniſh you with more to occupy the wall upward.

The trees having had their firſt year's pruning, obſerve the following rules in their ſecond year's culture.

During ſummer, all ſhoots that ariſe from the upper and under ſide of the former year's horizontals, are now to be retained and trained entire, and all buds or ſhoots that proceed immediately from the front and back part of the ſaid horizontals, ſhould be conſtantly rubbed off, becauſe they cannot be trained conſiſtent with the neceſſary form and regularity of the tree, having particular regard, however, to

reſerve all the regular ſhoots, and train them in at full length; for, except in ſome particular inſtances, the ſhoots muſt not be ſhortened in ſummer, therefore continue them to the wall entire till the winter pruning.

In November, when the leaves are fallen, or any time betwixt that and the beginning of March, you may proceed to the ſecond winter pruning; in performing this, we, for example, will ſuppoſe the tree in the firſt pruning to have been trained with four horizontals, that is, two on each ſide, and that each of theſe produced two or three well-placed ſhoots the preceding ſummer, or as many as to make the tree now poſſeſſed of eight, ten, or twelve branches; now, if theſe ſtand four, five, or ſix on one ſide, and as many on the other, it is a happy uniformity, and all of them are to be retained; and that to procure ſtill a farther ſupply of horizontals, each of the above are now to be ſhortened according to its ſtrength; if they are weakly, cut them to ſix or eight inches, and if of middling growth to ten or twelve, and if very ſtrong ones to about fifteen or eighteen inches, and train them to the wall horizontally, at ſix inches diſtance, obſerving that the oppoſite branches of each ſide range exactly in an equal poſition.

But where it happens that there are an unequal number of ſhoots, as for inſtance, four, five, or ſix on one ſide, and ſeven, eight, or more on the other, and that they are all of tolerable ſtrength; then, to render both ſides nearly equal, ſome of the weakeſt and worſt placed on the fulleſt ſide ſhould be cut out.

Obſerve to proceed as near as poſſible with an equal number and ſtrength of horizontals on both ſides, extending the loweſt branches the longeſt, and if you have now five, ſix, or eight on a ſide, trained at five or ſix inches diſtance, your tree will begin to aſſume a handſome form, and next ſummer you may expect ſome fruit.

Previous to the general pruning, obſerve, that peach and nectarine-trees always produce their fruit upon the one-year old ſhoots; that is, the ſhoots produced each ſummer bear the ſucceeding year, and the ſame individual ſhoots rarely bear but once, nor do they furniſh good bearing wood after the firſt year, ſo that the grand article in pruning, is to procure an annual ſucceſſion of theſe young ſhoots in every part, from the very bottom to the extremity every way of the tree, which are to be obtained principally by ſhortening, in winter pruning, thoſe of every year, whereby they furniſh, at the ſame time, both a proper crop of fruit, and ſupply of bearing wood.

The great art in pruning and training a peach and nectarine tree againſt walls, is to preſerve uniformity in every part from the beginning, having ſtrict regard that both ſides to the right and left advance with equal ſtrength, and number of horizontals, whoſe numbers on each ſide ſhould be equally encreaſed every year, and thoſe trained conſtantly in a nearly horizontal poſition, at five or ſix inches diſtance one above another, till by degrees, they cover the whole ſpace of walling allotted for them, both in breadth and height; for this is very eſſentially to be obſerved.

After the tree is thus formed and conducted to a bearing ſtate, its duration, beauty, and fruitfulneſs depend wholly upon proper pruning every ſummer and winter.

The general ſummer pruning conſiſts in reforming the irregularity of the numerous ſhoots then produced, and training to the wall at full length, in every part, all regularly placed ones, as ſucceſſion-wood for next year's bearing, for the great art is to procure a due ſupply of theſe every ſummer in all parts of the tree.

And the general winter pruning comprehends a general reform among all the branches and ſhoots of all ages, ſizes, and ſituation, ſuch as the retrenching all worn-out and naked branches, as they from time to time occur to make room for thoſe that furniſh the beſt bearing-wood, ſhoots of the preceding ſummer; at the ſame time ſelecting and retaining in every part the beſt of the ſaid ſhoots for next ſummer's bearing, cutting out unneceſſary and irregular ones, and all uſeleſs ſhoots in general, as well as part of the former year's horizontals, to make due room to train the proper uſeful ſhoots; all of which ſhould be ſhortened, to promote their emitting laterals in ſummer for bearing the year after, and the whole then nailed cloſe to the wall in regular order.

The

The time to begin the ſummer pruning is in May or June. Every one knows that in ſpring a peach-tree abounds with a great number of ſhoots, ariſing from every ſide of the laſt year's horizontals or preſent bearers, probably three times more than are uſeful, or than are wanted, or can poſſibly be trained in without confuſion; you muſt therefore thin them, and eaſe the tree of all that are irregular, and ſuch as are evidently uſeleſs and ſuperfluous, at the ſame time retaining a ſufficiency of the regular ſhoots; that is, two, three, or four of the ſide ones upon each horizontal, to be trained for next year's bearing.

The rule is this: Each of the laſt year's horizontals will probably produce from three to ſix, or more ſhoots, and of theſe, ſome proceed from the upper and under ſides, and ſome from the back and fore parts; thoſe of the former ſituation, viz. from the upper and under ſides, are to be regarded as the only proper regular ſhoots, and are to be principally attended to, retained, and trained in at full length, to prune upon in winter for bearing the ſucceeding year; but thoſe that proceed directly foreright from the front, and thoſe from the back of the horizontals, or from any of the other parts of the tree in that irregular direction, muſt be rubbed off cloſe, becauſe, by their ſituation on the branches, they cannot be trained with due regularity; therefore, that though good of themſelves, they are to be deemed irregular, or uſeleſs ſhoots, and ſhould be every where diſplaced, except in caſes where horizontals furniſh no other, when the beſt placed of them may be retained.

In reſpect to the regular ſhoots above deſcribed, examine, as you go on, their ſituation and number upon each horizontal; if two or more ſhoots riſe from the ſame eye, retain only one of them; and if the tree is but a moderate ſhooter, it is neceſſary to diſburthen it of all that are evidently ſuperfluous, which are ſuch ſhoots as, though good and well placed, yet if there are four, five, or more on a horizontal, where only one or two is apparently neceſſary for next year's bearing, ſome of the weakeſt and worſt placed, or any remarkably luxuriant ones, ſhould be cleared away, retaining however, where practicable, always two of the beſt ſituated and faireſt ſhoots upon the weak, and three or four on each of the middling and ſtrong horizontals, which, though double, or even treble of what will be apparently wanted, it is eligible culture to reſerve enough to chuſe from in winter pruning, training the whole at full length during ſummer.

But where a tree ſhoots very vigorouſly in general, it is adviſeable to reſerve as many of the ſide-ſhoots of each horizontal as there is tolerable room to train at full length, which, by dividing the ſap among many, checks luxuriance, which would probably take place in a ſmaller number; for the natural inclination of theſe ſort of trees ſhould, in ſome degree, be followed.

Another circumſtance to be attended to in thinning & regulating the ſhoots, is to leave one good ſhoot at, or as near the end of each bearing horizontal as poſſible, that it may draw the ſap through the whole branch to the nouriſhment of the fruit.

All weak ſhoots riſing from the old wood muſt be diſplaced, unleſs any regular placed ones appear uſeful to fill a vacancy.

If any remarkably vigorous or luxuriant ſhoot ariſe either from the bearing horizontals, or any of the older branches, examine its ſituation and ſtrength, and conſider whether it is wanted; if it is likely to impoveriſh the neighbouring ſhoots of moderate growth, or that it is not immediately wanted to fill a vacancy, cut it out; but if uſeful, either to fill a vacancy, or to prevent an apparent one, or to exhauſt too abundant ſap, retain it, and pinch it in May or early in June to four or five eyes, and you will procure one middling ſhoot from each eye the ſame year, to train in, to chuſe from in the winter pruning.

All thoſe very rank or luxuriant ſhoots, diſtinguiſhed ſingularly from the generality of the others of the ſame tree, by their extraordinary ſize, green colour, and often redneſs at the tips, ſhould be cut out from every part, unleſs you have no other reſource to fill a vacancy, when ſuch that are duly placed for that purpoſe may be reſerved and pinched as above obſerved.

Attention ſhould aways be had to the

the bottom or lower part of the trees, eſpecially thoſe that are aged; if any ſtrong ſhoot ariſe in thoſe parts, you muſt preſerve it carefully to ſucceed worn-out or naked branches, which are cut away by degrees; and if there is a preſent vacancy, pinch it early in June to four or five eyes, to furniſh lateral ſhoots the ſame year, to be ready againſt the winter pruning.

Where a vacancy or want of wood is diſcovered, at this time, in any part, and that there is only one ſhoot where two, three, or more are neceſſary, ſhorten or pinch the ſaid ſhoot to three, four, or five eyes, in May or early in June, and it will afford as many laterals the ſame year to fill the vacant ſpace.

In the whole operation of ſummer pruning, obſerve, that all the regular ſhoots you judge neceſſary to retain to prune upon in winter, muſt be left entire, ſhortening none now, except in caſes of vacancy as above, and all irregular and other uſeleſs ſhoots that are now to be taken out, muſt be rubbed or cut off as cloſe as poſſible, leaving no ſtumps, which would ſhoot out from every eye, and fill the tree with innumerable uſeleſs ſhoots, and choak up and darken the fruit, and deprive it of the neceſſary benefit of ſun, air, ſhowers, &c. and which would require much time to cut out in the winter pruning.

It is neceſſary to obſerve, that if the above operations are begun early in ſummer, the ſhoots that are to be diſplaced may readily be rubbed off with the thumb; but obſerve, if you delay the work till the wood begins to harden, they will not break off eaſily without damaging the mother-branch, therefore uſe the knife, and cut them as cloſe as poſſible.

After the above regulations, let all the remaining ſhoots, when of due length, be trained cloſe to the wall unſhortened, and as their ends advance, continue to train them ſtill along at full length, and let them remain entire until the winter pruning; for in the common courſe the ſhoots muſt never be ſhortened in ſummer.

Theſe are nearly all the directions we have to advance relative to the ſummer pruning; the utility of which, if the operation is performed in due time, is very great both to the tree and fruit.

Therefore, if the operations are begun in May, only juſt rub off all the ill-placed buds, that is, foreright ones, and thoſe behind the bearing horizontals, and ſuch others that are evidently uſeleſs, as before obſerved; and in June, when the uſeful or regular ſhoots are of proper length, they are eaſily and expeditiouſly trained in, for every one points to its proper place; beſides, when the work is begun early, it can be performed with conſiderably more expedition and truth, as the uſeleſs buds or ſhoots may then, with the utmoſt facility, be rubbed off cloſe with the thumb, without the uſe of any inſtrument, and the early operation will contribute very conſiderably to the ſize and goodneſs of the fruit, as well as beauty and duration of the trees.

The work however ſhould never be delayed longer than the beginning of June, or till the ſhoots have attained due length for training in, and not, as is often the caſe, wait till they are two or three feet in length, and form ſuch a thicket and confuſion, that the moſt expert pruner would be at a loſs to know where to begin to break through ſuch obſcurity, to determine what is neceſſary to be done, which, beſides, is highly prejudicial to the proſperity of the fruit, the main object, as well as to the beauty and duration of the tree; and the confuſion occaſioned by ſuch a thicket of wood and leaves prevents you from cutting cloſe, and the trees become full of diſagreeable ſtumps, producing uſeleſs ſhoots from every eye, which take up much time to remove in the winter pruning; and upon the whole the fruit being hidden, choaked up, and as it were buried behind ſuch a thicket, becomes tender, as is evident from the colour, which is rather white than green, and when thus ſuddenly laid open to the air, joined to a ſcorching ſun, great part of it withers and drops off, which never happens when the fruit has from the beginning been inured to the weather, by early rubbing off the uſeleſs, and training cloſe the uſeful ſhoots, ſo as to give the ſun and air free admiſſion; but on the contrary the fruit always excels in ſize, colour, and flavour.

At this time of laying in, or dreſſing, that is, June, we recommend the following obſervation, which could not

not be ſo diſcoverable at the earlier dreſſing, viz.

Where ſhort ſhoots, of an inch or two in length, appear upon this or the former year's horizontals, or ſides of the old wood, and that they apparently will not exceed that length, it is of utility to reſerve them, at leaſt till the winter pruning, becauſe they may prove natural fruit-ſpurs, which, at that ſeaſon, are diſtinguiſhable by having a cluſter of bloſſom buds.

If a vacancy is any where diſcovered early in ſummer, you may pinch ſome of the ſtrongeſt neighbouring ſhoots to three or four eyes, and they will furniſh you ſhoots the ſame year, to chuſe from in the winter pruning.

Do not pull off any of the leaves at this time, as often practiſed, with a view to admit the ſun, for theſe are neceſſary to the growth, both of the young ſhoots and fruit, ſo ſhould never be taken away, unleſs there is indeed in any part ſo great a thicket as to darken the fruit conſiderably, when a little thinning may be neceſſary; in other caſes that work muſt be diſpenſed with till the fruit are full grown.

After the trees have been ſummer-dreſſed, according to the preceding directions, you muſt not forget to review them once a fortnight, to rub off any unneceſſary or ſtraggling ſhoots that may ariſe, which is ſoon done, and to faſten up any ſhoot that may ſtart from its place, or project from the wall, as well as to continue the trained ſhoots in general thereto, as they advance in length.

One thing more, which is neceſſary to obſerve in the ſummer dreſſing, is the blight which attacks theſe trees: this diſorder is the effect of noxious winds, that occaſion the curling up of the leaves, which become thick, clammy, yelloviſh, red, and ſcabby; and attacks the ends of the ſhoots, and proves very injurious both to the young ſhoots and fruit, and often their deſtruction; for the blighted leaves exhauſt the ſap, at the expence of all the other parts of the tree. When your trees are firſt attacked, there is no other remedy for this accident than to pick off all the curled leaves as ſoon as diſcoverable, and alſo cut off, below the diſorder, all the infected part of the ſhoots, which generally form a rough diſagreeable buſh or thicket; this enables the ſap to puſh out new ſhoots lower down, for next year's bearing. So deſtructive is this infection, that it frequently deſtroys in a ſhort time the whole leaves of a wall of trees; and when theſe are gone, the principal part of the fruit ſoon after follow, which generally withers and drops; as likewiſe the young wood, for next year's bearing, either dies or becomes ſtunted. Various other methods have been tried to prevent the ſpreading of this peſtilence, but nothing effectual.

Inſects alſo often prove very injurious to theſe trees; a fumigating engine lately invented is recommended, in which is burned tobacco, the ſmoak of which iſſuing with a perpetual ſtream, is applied to the trees attacked by the vermin, which infallibly deſtroys them, without injury to the trees or fruit.

The winter pruning may be executed any time from the fall of the leaf in November, until the beginning of March; for no weather has any particular effect with regard to proving injurious to the new-cut ſhoots.

This work however ſhould never be delayed till late in ſpring, becauſe the bloſſom buds will be ſo very turgid or ſwelled, that numbers of them will be unavoidably rubbed off in performing the operation of pruning and nailing; though ſome wait till this period, that they may better judge of the good or bad buds, and of the wood-buds from thoſe that produce bloſſom and fruit. This is of ſome importance, but the ſap is generally riſen ſufficiently in January, or ſooner, to ſwell the buds, to enable you to diſtinguiſh them.

As theſe trees always bear their fruit upon the one-year old wood; that is, the ſhoots produced each ſummer bear the fruit the ſummer following, ſo that the fruit-buds are principally to be looked for upon theſe ſhoots.

Wood-buds are diſtinguiſhable by their being long and firm; bloſſom buds are round, ſwelling, thick, and ſoft.

It muſt be obſerved that good bloſſom buds are always double, two at an eye, having a leaf-bud or ſhoot between them; thoſe that are ſingle, though they ſometimes have a leaf-bud, and blow pretty well, never ſet fruit ſo freely as the twin bloſſoms.

Great

Great attention muſt always be had to keep every part of the tree well furniſhed with an annual ſupply of young wood, of the former ſummer, for bearing next year, advancing, as it were, gradually one behind another, from the bottom to the extremity every way; which is eaſily acquired by properly ſelecting, thinning, and ſhortening thoſe of every year, and by cutting out annually ſome of the old horizontals to make room for them. Likewiſe obſerve, that as the bottom of the trees are apt to become naked, be alſo watchful of that part, to retain in proper places an annual ſupply of ſtrong young wood, either to fill an immediate vacancy, or to be trained up gradually to ſupply the place of any naked or worn-out branch, that may happen either there, in the middle or upper part; which are ſuch that ſupport little or no young wood, or produce weak and a ſcanty portion of ſhoots, and ſhould, wherever they appear, be cut down to the great branch from which they proceed, or to any lower ſtrong young ſhoot they ſupport, or any convenient branch ſupporting ſuch ſhoots: and part of the old horizontals muſt be cut out annually, to make room to train in the bearing wood.

Previous to the performing the operation of winter pruning, it is eligible to unnail the greater part of the branches, and all the young ſhoots in general; you then have full liberty to examine the ſtate and ſituation of the whole, as well as to have due command in uſing your knife, and nailing the tree again in regular order, according to the ſituation and ſtrength of the general ſupply of young ſhoots neceſſary to be trained for next ſummer's bearing, &c.

The trees being unnailed as above, you ſhould firſt proceed to examine all the principal branches, and ſee if any are become naked, or worn out. Naked branches are ſuch that, as formerly hinted, have advanced a conſiderable length, and ſupport very little or no good bearing ſhoots, or lateral branches furniſhed with ſuch wood, and ſhould be cut out to their origin, provided there are proper young wood, or horizontals, well furniſhed with ſuch ſhoots, properly ſituated to be trained up to ſupply their places; for way muſt always be made for thoſe branches that furniſh the beſt young wood, both for bearing the following ſummer, and providing a further ſupply of ſhoots for future ſervice. And the worn-out branches are eaſily diſtinguiſhed by their uncommonly weak ſhooting, ſo ſhould be cut out as above, to make room to extend thoſe of better growth.

From theſe you paſs to regulate the ſhoots of the year; of which you will find often, on the ſame tree, weak ones, middle-ſized ones, and ſome of very luxuriant growth; thoſe of the middle-ſize are to be principally attended to; obſerving, as noticed in the ſummer pruning, that the proper ſhoots for our preſent purpoſe to train for next ſummer's bearing, are principally thoſe that grow upon the one-year old horizontals, and of which we are now to ſelect and retain the moſt regular placed ones, namely, ſuch as are the moſt properly ſituated for training cloſe and neatly to the wall, which are chiefly thoſe that proceed from the two ſides of the ſaid horizontals, ſo that keeping thoſe in view for training, clear away all the irregular and other uſeleſs ſhoots, as hereunder mentioned.

Suppoſe your tree to be chiefly of moderate growth, and here and there in it ſhoots of ſuperior luxuriance and rankneſs; theſe, where-ever ſituated, muſt be cut out cloſe: but if the tree is in general vigorous or luxuriant, the ſhoots muſt only be thinned in a moderate way, as hereafter directed.

All ſhoots of extreme weakneſs ſhould be cut away, unleſs you ſhall ſee it neceſſary to keep one here and there to fill a vacancy, or as a reſerve in caſe of one the future year; in which latter caſe I would cut them down to an eye or two.

I do not comprehend by weak ſhoots thoſe ſhort ones an inch or two long, which I call natural fruit-ſpurs, and often furniſh excellent fruit. Theſe muſt be retained.

All foreright ſhoots, and ſuch that proceed directly from the back of the branches, and in other irregular directions, that cannot be trained conſiſtent with the uniformity of the tree, and thoſe ariſing from the old wood, are alſo to be cut off cloſe, except in caſes of vacancy, and that there is no other reſource.

Cut away all ſtumps of laſt ſummer, and

and leave none now, cutting every thing close.

During the whole operation of the above reforms, great attention must be observed in selecting and retaining all the well-placed regular side-shoots above described, which must next be regulated according to the following rules.

Having in this manner cleared your tree from worn-out branches, and from luxuriant, irregular, and other bad shoots, there is nothing left but useful branches supporting horizontals, furnished with proper young wood, nearly of equal strength, and you see your work clear; you have nothing now to do but select and retain upon each horizontal a due portion of the best placed of these proper shoots, and retrench the superfluous ones.

Examine therefore the number of proper shoots upon each horizontal, and their strength, keeping in mind, that the middling strong ones are to be principally attended to. We advised in the summer pruning to leave upon each horizontal two, three, or four shoots, according to the strength of the tree in general: now, if your tree is fully trained, no more than one or two, as you shall see necessary, need be left upon each horizontal, except in cases where a tree is very luxuriant, or where there is a very wide space to fill, or a vacancy in its neighbourhood; but if the tree is still in training, you may retain two or more shoots upon each bearer, as you shall judge expedient, to forward the tree to its intended form. But suppose you are upon a still trained tree, or such that are nearly so, and that you judge one of the young shoots on each horizontal sufficient, keeping in view they should be trained about five, six, or seven inches distance; on this consideration you are to select the best of the lowermost of these shoots, unless you shall judge necessary to advance the length of the branch; then chuse the best of the uppermost, observing that whatsoever shoot you fix upon, to cut off the upper part of the horizontal on which it stands, close to the said shoot, or if you leave two or more shoots upon each horizontal, let one be near the upper, and the other near the lower part thereof, on the opposite sides, and cut down the horizontal to the uppermost of the two shoots, so that by cutting away part of each of the former year's horizontal, the remaining part is terminated by a young shoot, which now commences the bearer or horizontal of the ensuing year.

Observe, where two or more shoots arise from the same eye, never leave but one.

Where any shoots rise from the sides of the old wood or main branches, and which you shall judge necessary to retain, either to fill a present vacancy, or to be ready for an apparent one, it may be reserved without shortening down the said branch to it, as is necessary in the one year's horizontals, unless that part of the said branch immediately from the shoot upward is naked, or unfurnished with young wood, in which case take it down to the shoot in question.

Those short shoots or natural spurs, an inch or two long, above observed, may be retained wherever they appear, for they are generally well furnished with blossom buds.

Observe, that many of the principal bearing shoots which you now retain, will have probably put out several small twigs or side shoots; these, being produced late, are generally spongy, besides, being superfluous or unnecessary, must be cut close, leaving only the main shoot.

In cutting out the irregular and superfluous wood in general, cut all close, leaving no stump, which would send out shoots from every eye the ensuing summer, and crowd your tree with useless wood; and any of those short natural spurs of the former year, now devoid of blossom buds, or that exceed two or three inches in length, should now also be cut away close, but especially those that advance directly foreright.

After making these reforms of regulating and thinning, we proceed to consider of shortening the remaining select shoots, the utility of which is obvious; for as these trees always produce their fruit upon the one-year old shoots, the same wood, by proper shortening in winter pruning, furnishes, as well as fruit, lateral shoots the following summer, to bear the fruit the year after that; therefore, to procure an annual supply of young wood in the proper parts, we must not omit

ſtopping or ſhortening that of each year in the winter pruning, by which each ſhoot will emit two, three, or more lateral ones the ſucceeding ſummer; whereas, if they were left at full length, the ſap which would have thrown out ſhoots below, would mount to the extremities, and leave the bottom bare, and in a ſhort time all the lower part of the tree would become naked, and furniſhed with bearing wood only towards the extreme parts. The rule of ſhortening is this; if the tree is in health, and of a middling free growth, ſhorten or cut off about one-third of the length of each ſhoot; for inſtance, ſhoots of ten or twelve inches ſhould be ſhortened to ſix or eight; thoſe of about fifteen or eighteen inches ſhorten to eight, ten, or twelve; and ſo in proportion to the length and ſubſtance of the reſpective ſhoots, obſerving, where a tree is weak, or on the decline, and makes weakly ſhoots, to leave the ſhoots thin, and cut them ſhorter in proportion: on the contrary, where a tree is in general a vigorous ſhooter, leave the ſhoots cloſe, and ſhorten them moderately, which by retaining a good deal of wood to divide and exhauſt the great redundancy of ſap, is the only means to reduce a luxuriant tree to a ſtate of moderate growth, and to bear plentifully.

In ſhortening theſe ſhoots, it is of importance to cut them juſt above a wood, or branch-bud, that it may produce a ſhoot for a leader, to draw the ſap through the whole horizontal, the more effectually to nouriſh its reſpective fruit. A wood bud is with facility diſtinguiſhed from a bloſſom-bud; the former is long, narrow, and firm, the bloſſom-buds are roundiſh, thick, ſwelling, and ſoft; ſo that by cutting to a wood bud you are ſure of a leading ſhoot, and the fruit will be well nouriſhed; but where two bloſſom-buds appear on the ſame eye, a wood-bud alſo generally iſſues from between, ſo that if you cannot conveniently cut to a wood-bud, make the cut to a twin bloſſom-bud as above.

Thus much for the general directions to be obſerved in the principal winter pruning, although there are other circumſtances that cannot be conveyed by words, nor judged of but upon the ſpot, which depend chiefly upon practice.

We will however ſubjoin a few other particulars very neceſſary to be obſerved.

In the courſe of practice, you will meet with trees of very different habits of growth; ſome, for inſtance, are weakly, and produce ſmall or weak ſhoots; others, of a middling ſtate, ſhoot freely in every part, but not too vigorous, which is the moſt deſireable ſtate of growth of any; and ſome ſhoot very vigorous in almoſt every part. With reſpect to the former, if the tree makes very weak ſhoots, examine whether the diſeaſe is at the root; if it is, pull it up; if not, preſerve it, and dig in rotten dung, which often recovers theſe ſort of trees, obſerving to keep it thin of wood, and prune the ſhoots ſhort, and even the beſt to five or ſix inches, till it recovers. In the ſecond caſe, the middling ſhooting tree is to be managed as in the general directions. And in the third inſtance, if the tree be remarkably vogorous, and bear little, it ſhould in ſome degree be humoured in its own way; for if you cut out many, and ſhorten conſiderably the remainder of theſe very vigorous ſhoots, where they are general, as is frequently done without mercy, ſuppoſing by that practice to check luxuriance, and ſo continue to prune, and depend entirely upon the ſmalleſt ones, the conſequence is, that by much thinning, and cloſe cutting vigorous trees, they continue to ſhoot ſtill with greater vigour and irregularity for ſeveral years, without being able to gain either form or fruit, till at laſt, by ſevere pruning, they paſs into the oppoſite extreme, become, as it were, tired with acting ineffectually, grow weak & fickly, and ſhoot no more. On the contrary, by following, in ſome degree, the inclination of the tree, leaving the ſhoots as cloſe as there is any tolerable room to lay them in, and ſhortening them very little, ſome of the ſtrongeſt not at all; and by thus leaving a good deal of wood, and that at a conſiderable length, the ſap is divided, and the luxuriance is checked; and in a year or two your tree will become a moderate ſhooter, and furniſh fine young wood, and bear plentifully.

The trees being pruned, they ſhould be directly nailed to the wall; as you go on, that is, as ſoon as one tree is pruned, let that be nailed before you prune another.

Peach-trees come into bloſſom early in ſpring, when cutting froſts prevail, which, in ſome ſeaſons, is ſo ſevere as to cut off the whole. Not only the bloſſom is liable to this diſaſter, but alſo the young fruit, till they are as large as ordinary cherries, which oblige us to have recourſe to all poſſible means to defend them.

The dangerous time laſts a month or ſix weeks; various ways have been tried to ſhield the trees during that period; ſome cover with large garden mats, which are often found of great uſe; but where there is much walling, it takes up much time to cover and uncover, as the danger threatens, for they muſt only be uſed when there is apparent danger: free air and light muſt be admitted, ſo that if the mats are nailed up in an evening when there is an appearance of a cutting froſt, they ſhould be removed again in the morning, if the weather is quite mild; but if not, they may be permitted to remain till it is: do not omit however to take them down when the weather changes; and ſo continue their uſe only occaſionally, till your fruit are as big as large peas at leaſt.

This is the principal expedient in practice to defend theſe trees, which, after all, ſometimes does not ſecure a quarter of a crop; it however ſhould not be omitted in hazardous times, eſpecially to ſome of the early and choice ſorts.

There is another method which we have ſometimes experienced to ſave a few fruit, when all that were fully expoſed were cut off: this is to procure a quantity of cuttings from the branches of evergreen trees, ſuch as thoſe of laurel, yew, ſpruce-fir, &c. and ſtick them moderately thick between the branches of the peach-tree, ſo that the leaves of the cuttings cover the bloſſom; theſe ſhould be placed when the bloſſoms begin to open, not too thick to darken it, and may be permitted to remain until the beginning of May, when the fruit will be ſet, and paſt danger. In default of the above cuttings, branches of dried fern may be uſed.

Neither of theſe methods of covering, nor indeed any other, can we recommend as generally effectual; but a poor expedient is better than none; they often inſure a few fruit, when thoſe that are fully expoſed are all deſtroyed by the froſt.

In favourable ſeaſons peach and nectarine-trees ſometimes ſet their fruit very thick in every part, often double or treble the quantity that have room to grow, or the trees capable of nouriſhing, and frequently the fruit are ſet only here and there in cluſters; in either caſe they muſt be thinned, otherwiſe the fruit will not attain half its common ſize, and during their growth would thruſt one another off; beſides, if the trees are overloaded, they would produce but very weakly ſhoots for next year's bearing, and would be two years before they recovered themſelves.

This work ſhould be performed when the fruit have attained nearly the ſize of ſmall cherries, which will be ſome time in May, for if you thin them ſooner, froſts may deſtroy the remainder, and you have no reſource left.

The rule of thinning is, if the tree is weak the fruit muſt be left thin, not more than one or two on the larger ſhoots, and none upon the ſmall ones, which is the only way to inſure wood for another year: upon trees of a middling ſtrong growth you ſhould retain but one fruit upon the ſmaller ſhoots, and two upon the middling ſized ones, and three upon the ſtrong ſhoots: but the ſmalleſt kinds of fruit may be left a little thicker in proportion, and the large ſorts ſhould be thinner, i. e. about ſix inches diſtant upon each ſhoot, and the largeſt of all eight or ten. In performing this work, obſerve to ſelect and retain the beſt placed, largeſt, and faireſt fruit, in every part, according to the above rule; and in removing the ſuperabundant ones, be careful not to diſturb theſe. Leave no where two or more upon the ſame eye, eſpecially if one exceeds the other in ſize, taking off the ſmalleſt, which the other would ſtarve; but if they are of equal ſize, you may, if it ſhall ſeem neceſſary, leave both of them.

We formerly obſerved, that it was of utility to preſerve a ſlight coverture of the leaves of the tree, by way of ſhade to the fruit during their growth, and until they begin to change colour: when they have attained that ſtate of perfection, it is neceſſary to pinch off a few of the leaves that immediately cover the fruit, to admit the ſun to give it colour and flavour.

Do this however regularly, and thin the leaves by degrees, which ſhould be pinched, and not torn off, which would mangle the eyes, and prevent the fruit buds from forming themſelves for next year.

Peach-trees, from the time of heading down to the ſixth or ſeventh year, may be ſaid to be in a ſtate of training, though they frequently begin to bear the ſecond or third year after the operation of heading down; and in five, ſix, or ſeven years will bear pretty plentifully, according to their ſize, for they will not have attained their full growth till they are ten, twelve, or fifteen years old, according to the extent of walling they have to cover, at which age they will be arrived at the beginning of their ultimate ſtate of vigour and perfection of bearing, which they generally acquire between the ſeventh and fifteenth year, and in which they will continue for twenty or thirty years to come; for theſe trees, with due management, will endure fifty or ſixty years, provided no accident happen, ſuch as violent blights, or tainted with gum, or attacked by vermin; ſo that the opinion of ſome, that peach-trees are ſeldom of more than twelve or fifteen years duration, is erroneous, and muſt be given up, for it is owing only to bad management that they do not laſt as long as other fruit-trees.

The trees may be ſaid to be in their third ſtate when they begin to decline through age; but if our general directions in pruning are obſerved, this ſeldom happens until they are upwards of thirty or forty years old, when they ſhould be cheriſhed by leaving only the beſt young ſhoots, and that moderately thin, and which ſhould be pruned ſhorter than the general rules. Make the moſt of ſtrong young wood that riſes from or near the bottom, to ſupply the place of worn-out branches.

When it is obſerved any trees approach near their end, and the bottom of the walls become naked, young trees ſhould be planted in due time in the ſpaces between the old ones to ſucceed them, and as they ſhoot up lop off the lower branches of the old trees, which in four or five years may be taken entirely away; thus you may keep your walls always occupied, without intermiſſion.

It ſometimes happens that the trees do not bear fruit of the approved or deſired ſort, which is often the mortifying circumſtance when purchaſed in ſome nurſeries, and a very cruel one, after all the trouble of training, &c. To remedy this you, in Auguſt, may bud ſome of the young ſhoots of the ſame year, in different parts of the tree, and as theſe advance, cut the other parts away, and in two or three years they will ſpread conſiderably, and bear fruit.

If the gum has attacked any ſhoot of a tree, young or old, cut it off an inch below, to ſtop the communication, and prevent killing the whole ſhoot.

The utility of tillage to theſe trees is very obvious, and ſhould be performed every autumn and ſpring.

Dung, in moderation, is alſo of the utmoſt utility in preſerving due vigour and health in theſe trees, and to promote the ſize of the fruit; let it be perfectly rotten, and added every two or three years, ſpreading it all over the border, and dig it in in the uſual way.

As to cultivating kitchen herbage on the borders, the moderate growing ſorts, ſuch as radiſhes, lettuce, ſmall ſallad herbs, kidney-beans, a few ſmall early mazagan beans, peas, &c. do very little or no injury to the trees.

Peach and nectarine-trees are often planted in forcing-frames and hot-walls, to produce early fruit; the ſorts proper for this are the earlieſt kinds.

There are two varieties of peach-trees that are eſteemed chiefly by way of curioſity and ornament, which we judge it moſt proper to ſpeak of under a ſeparate head. Theſe are, the

Double bloſſomed peach-tree; and Dwarf peach-tree.

The former of theſe has great beauty in its double flowers; it attains the height of common peach-trees, and differs in nothing from them but in the doubleneſs of its flowers, which, like thoſe of the others, are ſucceeded by fruit: the tree make a fine appearance in ornamental plantations.

The dwarf peach riſes but two or three feet high; the ſtem is ſmall, and hath very ſlender branches, which produce ſmall inſipid fruit, the ſize of a nutmeg. It is ſometimes planted in pots, and brought to table with the fruit upon for curioſity, and makes a ſingular appearance.

For

For purpoſes of ornament, any of the ſorts of peach-trees may, with propriety, be admitted as ſtandards in the ſhrubbery, and will make a fine appearance when in bloom; and if they ſtand in a ſheltered ſituation, there will be a chance of having now and then ſome fruit from them: they may either be planted as ſtandard-dwarfs, or as half or common ſtandards.

The propagation of the double bloſſomed and dwarf kind is effected by budding, the ſame as common peach-trees.

The nectarine and peach-trees have been generally conſidered as diſtinct ſpecies, principally by the difference of their fruit; but late diſcoveries has determined otherwiſe, and that they are found to be varieties of one another, but which is the original is not yet agreed on; but certain it is, that there have been inſtances of nectarines growing naturally on peach-trees, accompanied by peaches on the ſame branch; which very ſingular phœnomenon determines them to be varieties of one ſpecies.

Neither the trees, by their manner of growth, the wood, leaves, nor flowers of nectarines and peaches, can with any preciſion be diſtinguiſhed from one another; but the fruit is diſtinguiſhable at ſight in all its ſtages of growth: that of the nectarine hath a ſmooth firm ſkin or rind, and the peach is covered with a ſoft downy matter; the fleſh too or pulp of the nectarine is conſiderably firmer than that of peaches. See NECTARINE.

WOLF-PEACH, [*Lycoperſicon.*] Love-Apple, ſee LOVE-APPLE.

PEACOCK, [*Pavo.*] In ornithology, a genus of birds, of the order of the gallinæ, the characters of which are theſe: there are four toes on each foot, and the head is ornamented with an erect creſt of feathers.

PEARL, [*Margarita.*] in natural hiſtory, a hard, white, ſhining body, uſually roundiſh, found in a teſtacious fiſh reſembling an oyſter.

Pearls, though eſteemed of the number of gems by our jewellers, and highly valued, not only at this time, but in all ages, proceed only from a diſtemper in the creature that produces them, analogous to the bezoars, and other ſtony concretions in ſeveral animals of other kinds; and what the antients imagined to be a drop of dew concreted into a pearl in the body of the pearl-fiſh, which they ſuppoſed roſe from the bottom to the ſurface of the water to receive it, is nothing more than the matter deſtined to form and enlarge the ſhell, burſting from the veſſels deſtined to carry it to the parts of the ſhell it would have formed, and by that means producing theſe little concretions.

The fiſh in which theſe are uſually produced is the Eaſt-India pearl-oyſter, as it is commonly called; it has a very large and broad ſhell of the bivalve-kind, ſometimes meaſuring twelve or fourteen inches over, but thoſe of eight inches are more frequent: it is not very deep; on the outſide it is of a duſky brown, and within of a very beautiful white, with tinges of ſeveral other colours, as expoſed in different directions to the light. Beſides this ſhell, there are many others that are found to produce pearls; as the common oyſter, the muſcle, the pinna marina, and ſeveral others, the pearls of which are often very good, but thoſe of the true Indian burberi, or pearl-oyſter, are in general ſuperior to all. The ſmall or ſeed pearls, alſo called ounce pearls, from their being ſold by the ounce, and not by tale, are vaſtly the moſt numerous and common; but as in diamonds, among the multitudes of ſmall ones, there are ſmaller numbers of larger found, ſo in pearls there are larger and larger kinds; but as they increaſe in ſize, they are proportionably leſs frequent, and this is one reaſon of their great price.

Artificial PEARLS. Are made by reducing ſeed pearls to a paſte, by means of a chemical preparation called mercurial water, making the beads in ſilver moulds, boring them with a hog's briſtle, and drying them in a cloſed glaſs in the ſun.

Beads, in imitation of pearls, are alſo made of wax, and covered with the ſcales of ſeveral kinds of fiſhes.

PEAR-TREE, [*Pyrus.*] There is only one ſpecies of this tree, but it comprehends almoſt endleſs varieties, which furniſh fruit for uſe from the beginning of July until May or June the next year. We ſhall confine ourſelves to a liſt of the moſt valuable, arranged in three claſſes; ſummer-pears, autumn-pears, and winter-pears.

Summer

Summer-Pears are ſuch as ripen from the beginning or middle of July until the middle or latter end of September, and continue but a ſhort time in perfection: ſome of the earlieſt ſorts keep good only a few days before they become mealy and rotten; and very few of the ſorts will laſt much above a fortnight; but by having different varieties the ſucceſſion may be continued two months or ten weeks, till ſucceeded by the autumnal ſorts, which will continue in eating from the end of September till Chriſtmas.

Little Muſk-Pear. A ſmall roundiſh yellow pear of a muſky flavour, valuable for its early perfection: ripe beginning or middle of July.

Green Chiſſel Pear. A ſmalliſh, nearly oblong, light-green pear, melting, very juicy, and agreeably flavoured; ripe the middle or end of July.

Red Muſcadelle, or Faireſt Supreme. A middle-ſized, beautiful, red-ſtriped and yellow pear, ſomewhat firm, breaking juicy and rich flavoured; ripe the end of July and the beginning of Auguſt.

Jargonelle Pear, commonly ſo called, but is properly Cuiſſe Madam, or Lady's thigh. A largiſh, long, pyramidal, ruſſetty-green pear: ripe beginning or middle of Auguſt.

Cuiſſe Madam Pear, commonly ſo called, but is properly the Jargonelle. A fine large oblong, ſmooth, yellowiſh-green pear, ſometimes reddened next the ſun, having a firm pulp, tolerably juicy, and agreeably reliſhed, though not high flavoured, and is apt to become mealy when full ripe; but being a large handſome fruit, and the tree a remarkably good bearer; it highly merits culture, particularly for the ſupply of markets; and for which purpoſe it is greatly cultivated about London: ripe towards the middle of Auguſt.

Windſor Pear. A large oblongiſh pear, ſwelling conſiderably towards the crown, of a greeniſh-yellow colour, having a ſoftiſh pulp, but ſoon becomes mealy: ripe middle or end of Auguſt.

This ſort and the former bear a great reſemblance to each other, but this is rather ſhorter and more ſwelling towards the crown.

Great Blanquette Pear. A large roundiſh, yellowiſh-green, ſmooth pear, having a ſoft juicy fleſh of a rich flavour: ripe beginning or middle of Auguſt.

Little Blanquette Pear. A ſmall, roundiſh, ſmooth, yellowiſh-green pear: ripe middle or end of Auguſt.

Early Ruſſelet Pear. A middle ſized, oblong, reddiſh pear, melting, and replete with ſugary juice: ripe about the middle of Auguſt.

Muſk Robine, or Queen's Pear. A ſmall roundiſh, top-ſhaped, yellowiſh-coloured pear, tender, ſweet, and muſky: ripe middle or end of Auguſt.

Red Orange Pear. A middle-ſized, globular pear, reddened on the ſunny ſide, the other green, melting and richly flavoured: ripe end of Auguſt.

Perfumed Pear. A middling, roundiſh, deep-red pear, ſpotted with brown, having a melting perfumed fleſh: ripe end of Auguſt.

Orange Muſk Pear. A large, round, yellow pear, very good if eaten from the tree, as ſoon as a little ripe: it ripens in the end of Auguſt.

Auguſt Muſcat, or Poyal Pear. A largiſh, globular, whitiſh-yellow pear, breaking ſugary and perfumed, and one of the fineſt pears of the ſeaſon: ripe end of Auguſt.

Onion Pear. A middle-ſized, globular, brown-ſkinned pear: ripe end of Auguſt.

Salviati Pear. A largiſh, globular, flatted pear, reddiſh and yellow to the ſun, and whitiſh on the other ſide, tender and agreeably flavoured: ripe beginning of September.

Red Admirable Pear. A large globular pear, crimſon-coloured on the ſunny-ſide: ripe in September.

Summer Bon Chretian, or Good Chriſtian. A fine, large, oblong pear, beautifully reddened next the ſun, and whitiſh on the other ſide, breaking and highly flavoured: ripe beginning of September.

Roſe Water Pear. A middle-ſized, globular, browniſh red, rough pear, breaking and finely flavoured: ripe middle of September.

Summer Bergamot Pear. A largiſh, round-flatted, greeniſh-yellow pear, melting and ſugary: ripe middle of September.

Varieties. There are two or three varieties of this ſort that differ in ſize, but are all of the Bergamot ſhape.

Orange Bergamot Pear. A largiſh round-

round-flatted, greeniſh-yellow pear, reddiſh next the ſun, breaking and replete with perfumed juice: ripe towards the end of September.

Other Summer Pears of leſs note are known by the following names; Catharine Pear,—St. James's Pear—Crawford Pear,—Citron Pear,—Pear Piper,—Brute Pear,—Muſkdrone Pear,—Lemon Pear,—Green Muſk Pear,——Long ſtalked Blanquette Pear.

All the kinds of Summer pears ripen on the trees fit for eating, but ſhould be gathered before they are too ripe.

Autumnal Pears.

Autumn pears are ſuch as attain their full growth on the trees from about the middle or end of September till the end of October; and which after being gathered gradually mellow and improve in flavour, and will keep ſome a month, others ſix weeks, and ſome two months or longer; being in eating principally in October, November, and December.

Autumn Bergamot Pear. A middle-ſized, roundiſh, flatted, yellowiſh-green pear, faintly reddening next the ſun, melting, and of a richly perfumed flavour: ripe end of September or beginning of October, continuing good until the end of November.

Swiſs Bergamot Pear. A middle-ſized, roundiſh, greeniſh Pear, finely ſtriped with red, melting and tolerably well flavoured: ripe the end of September, continuing in eating till November.

Great Ruſſelet Pear. A large oblong brown and reddiſh pear, ſometimes ſpotted, having a tender rich pulp: ripe middle or end of September.

Brown Beurre, or Beurre de Roy Pear. A fine, large, oblong, ruſſetty, brown and greeniſh pear, very melting, juicy, and ſugary, and is one of the fineſt pears of the autumn: ripe beginning of October, and keeps good till December.

White Beurre Pear. A large, roundiſh, top-ſhaped, whitiſh-yellow pear, melting, very juicy and good: ripe beginning of October, and keeps till November.

Red Beurre Pear. A large, oblong, reddiſh pear, melting and very fine: ripe beginning of October.

Green Sugar Pear. A middle-ſized, top-ſhaped, ſmooth, green pear, full of a rich ſugary juice; ripe end of October, and keeps good all November.

Monſieur John Pear. A largiſh, nearly round, ſwelling, brown pear with a rough ſkin, having a breaking, delicious pulp: ripe end of October, continuing in perfection all November and part of December.

Creſane Pear. A large, ſomewhat globular, flatted, greeniſh-yellow, ruſſety pear, hollowed at the top, is remarkably tender and ſweet, and may be ranked as the fineſt pear of the ſeaſon: ripe end of October, keeping good till December.

Swann's-egg pear. A moderately large, egg-ſhaped, duſky-green pear, browniſh next the ſun, is very juicy and agreeably flavoured: ripe end of October, continuing in tolerable perfection till near Chriſtmas.

Verte Longue, Long-Green Pear, or Autumn Mouth-water. A large, long, very green pear, is melting and juicy: ripe in October, and continues till December.

Marquis's Pear. A fine large, ſwelling, flat-topped, greeniſh-yellow pear, faintly ſpotted with red, having a tender good pulp; is in eating in November and December.

Grey Good-wife Pear. A middle-ſized, roundiſh, browniſh-red pear, moderately tender and well-flavoured: is in eating from the end of October till December.

Rouſſeline Pear, or Long-ſtalked, late Autumnal Muſcat. A large, oblong, long-ſtalked pear, reddiſh on the ſunny ſide, is tender, and of a muſky flavour: in eating in the end of October and part of November.

Muſcat Fleury Pear. A ſmalliſh globular, browniſh-red, long-ſtalked Pear, tender and high-flavoured: in eating from October till December.

Twice flowering Pear-tree. It often produces bloſſom twice a year, the firſt in the ſpring, and the ſecond in autumn, ſo is preſerved in many gardens as a curioſity.

Other leſs material autumnal pears are—Peſideri Pear.—Dean's Pear.—Vicar's Pear.—Vine Pear.—Autumn Roſe Pear.—French Bergamot.——Beurre Bergamot.—Knave's Pear.—Burnt Cat Pear.—Pound Pear, very large.

All the autumn pears ſhould have their full growth on the tree, but not hang till quite ripe, which is the end of September and in October, being their ſeaſon of full growth.

Winter Pears.

Winter pears arrive to full growth about the end of October and in November, but do not attain maturity for eating until they have lain ſome conſiderable time in the houſe, ſome a month or ſix weeks, others two or three months or more, before they ripen, as obſerved below in their deſcriptions, ſo that they ſucceed one another in perfection generally from about December until May.

By the winter pears being ſo long acquiring perfection after gathered from the tree, many perſons have thought them fit only for culinary uſes; but moſt of the following are very fine eating pears, after having lain the proper time to mellow.

St. Germain Pear. A large long yellowiſh-green, extraordinary fine pear, of the melting ſugary kind: in eating from December until February.

Chaumontelle Pear. A large oblong pear, having one ſide purpliſh, the other of a whitiſh-green colour, is melting, of a very rich delicious flavour: in eating from December until March or April.

Martin Sec, or Dry Martin Pear. A large, oblong, ruſſety-reddiſh pear, is breaking, ſomewhat dry, but of a fine perfumed flavour: in eating end of November, December, and January.

Colmar Pear. A large ſwelling, flat-topped, greeniſh-yellow pear, ſpotted with yellow; is tender and exceedingly fine flavoured: in eating from December till January or February.

Spaniſh Bon Chretien. A large pyramidal purple and yellow pear, having many dark ſpots on the purple ſide; is a fine winter pear, ready for eating the end of December, continues good near two months.

Virgoleuſe Pear. A large, oblong, greeniſh-yellow pear, ſometimes browniſh next the ſun, is an excellent fruit: in eating from the beginning or middle of December until the end of January.

Dauphine Pear. A middle-ſized, roundiſh, top-ſhaped, ſmooth, yellowiſh-green pear, having a melting, ſugary, muſky pulp: in eating the end of November, continuing in perfection all December and moſt part of January.

Winter Verte Longue Pear. A longiſh, green-coloured, ſmooth, ſpotted exceeding good pear: in eating the end of December and January, &c.

Winter Beurre Pear. A ſmalliſh, oblong, yellowiſh, red-ſpotted, very fine pear; ready for eating in December and January.

Winter Thorn Pear. A large, long, pyramidal whitiſh-green pear; is melting, and in fine eating from December till February.

Martin Sire, or Lord Martin Pear. A large, roundiſh, irregularly-ſwelling, ſmooth pear, red on one ſide, the other yellow; is breaking, and of a perfumed flavour: in eating in December and January.

Winter Bergamot Pear. A middle-ſized, roundiſh, greeniſh-yellow pear: in eating from the end of November until the ſpring.

Hollond's Bergamot. A large, round, greeniſh pear, having a tender rich pulp: in eating from January till April.

Winter Bon Chretien. A very large, long pyramidal, yellowiſh-green pear, having often an uneven ſurface; is breaking, very juicy, remarkably ſweet and rich flavoured, and often proves the beſt winter pear in the collection: in eating from February till April or May.

German Muſcat Pear. A middle-ſized, oblong, ruſſety-red pear, having a melting rich pulp: in eating from February till May or longer.

Eaſter Bergamot Pear. A large, roundiſh, flat-topped, greeniſh pear, having many rough ſpots, is of the breaking kind; and is in eating from February till April or May.

Winter Ruſſelet Pear. A middle-ſized, longiſh pear, red on one ſide, the other of a greeniſh-yellow, is melting and agreeably reliſhed: in eating in January, March, &c.

St. Martial Pear. A longiſh, oblong, ſmooth pear, one ſide purple, the other yellow; having a buttery rich fleſh: in eating from February till May or June.

Cadillac Pear. A very large, roundiſh, red and yellow pear, having a hard, four, pulp, but is excellent for baking and other culinary purpoſes: in uſe from November or December till May.

Union Pear, or Uvedale's St. Germain. A large, long, deep-green pear, reddiſh on one ſide, having a hard, four, pulp, but is excellent for baking, &c. in perfection from November or December till May or longer.

Black Pear of Worceſter, or Parkinſon's Warden. A remarkably large, oblong, duſky brown, rough pear, having a hard auſtere pulp, but is very fine for culinary uſes, from November till March or April.

Double Flowered Pear. The tree produces double flowers ſucceeded by a large, ſhort, yelloviſh and red pear, rather hard and auſtere; but is remarkably fine for baking, &c.

Other leſs material varieties of winter pears are known by the following names.—Good Lewis, a large, long-iſh pear.—Ambrette, a large roundiſh pear.—Thick-ſtalked Pear, a very large roundiſh fruit.—Amadot, a middle-ſized oblong pear.—St. Auſtin, a middling oblong pear.—Ruſſet of Anjou, large roundiſh pear.—Chaſſery, a large oblong pear.———Iron-coloured Pear, a middle-ſized oblong fruit.—Golden Winter Pear, a large globular fruit.—Villain of Anjou, a large roundiſh pear.———Winter Ruſſeter, a middle-ſized longiſh pear.—Carmelite, a middling roundiſh pear for kitchen uſes.——— Winter Citron-ſhaped Pear, for baking.—Blood Pear, for baking, &c.—Engliſh Warden, a large pear for baking and other culinary uſes.

There are many other varieties of pears of leſs account, both of ſummer, autumn, and winter kinds, that are unneceſſary to inſert here; and indeed it would be almoſt impoſſible to diſcriminate the various ſorts of hard pears, and others of little note, found in the orchards and gardens in country villages and about farm-houſes, in different parts of England, &c.

But as the varieties deſcribed in the above three liſts are of known merit, and are cultivated in moſt of the nurſeries for ſale, by the names here prefixed to each kind, conſiſting of near ſixty different ſorts, they are more than ſufficient to furniſh the moſt extenſive garden with a copious variety of pears, almoſt the year round.

All the varieties of this tree are hardy and will ſucceed in any common ſoil of a garden or orchard, both as dwarfs for walls and eſpaliers, &c. and in ſtandards of all ſorts; and in all of which modes of training they will bear plentifully: it is however of importance to allot a good wall and eſpalier for ſome of the choicer kinds, both ſummer, autumnal, and winter pears, in order both to forward the growth of the fruit and to improve its ſize, beauty, and flavour: a ſouth, eaſt, and weſterly wall are the proper expoſures, and it is eligible to plant ſome in each of thoſe aſpects, to vary the times of ripening, though moſt of the ſummer pears will ſucceed very well in almoſt any aſpect, and if ſome are planted alſo againſt a north-wall, they will ripen later, and continue the ſucceſſion of any approved ſorts longer in eating; but it is particularly neceſſary to allow all the fine ſorts of winter pears an eaſt or weſt wall, or a well-expoſed eſpalier, otherwiſe they will not perfect their fruit kindly in unfavourable ſeaſons; in eſpaliers however that are well trained, all the ſorts of pears attain great perfection, and the eſpaliers may be arranged round the quarters of the kitchen-garden, or in any other free ſituation where the ſoil is of ſimilar quality.

Remarking, that theſe trees, both againſt walls and eſpaliers, ſhould generally be allowed a great deal of room to ſpread, for by having full ſcope they will extend their branches more than twenty feet on each ſide of the ſtem, and the whole will ſometimes form a ſpread of forty or fifty feet, with height in proportion.

Standards of ſome ſorts of pears are alſo naturally of a very ſpreading growth, others grow more upright.

However, in all the methods of training theſe trees, it is highly requiſite to allow them ſufficient room to ſpread to their full extent, and their branches ſhould be ſuffered to extend themſelves always at full length; for pear-trees ſhould never be ſhortened, except in the firſt or ſecond year, &c. to obtain a ſupply of lateral branches to form a more regular ſpreading head, becauſe as they always bear their bloſſom and fruit upon ſhort ſpurs ariſing from the ſides of the branches; firſt, however, towards the extreme parts, then by degrees all along the ſides almoſt from every eye, that ſhortening would cut away the firſt fruitful parts, and thus by ſtopping their progreſs of ſhooting in length it would force out ſtrong ſhoots from all the eyes, and prevent their forming ſpurs or fruit-buds; but being trained at full length they ſhoot moderately, and in two or three years naturally form

ſhort ſpurs of from about half an inch to an inch or two long, the ſame branch and ſpurs continuing fruitful a great number of years.

But it muſt be obſerved, that pear-trees are generally ſeveral years before they attain any tolerable bearing ſtate, for the branches ſeldom begin to form fruit-ſpurs till they are from about two or three, to four or five years old; at that age, however, they ſometimes begin to bear, but never any general crop till they are eight or ten years old.

Pear-trees are propagated by grafting and budding upon any kinds of pear-ſtocks; alſo occaſionally upon quince-ſtocks, and ſometimes upon white-thorn ſtocks, but pear-ſtocks are greatly preferable to all others for general uſe. See APPLE-TREES, ESPALIERS, GRAFTING, PRUNING, &c.

In the gathering of pears, great regard ſhould be had to the bud which is formed at the bottom of the foot-ſtalk, for the next year's bloſſoms, which, by forcing of the pear before it be mature, is many times ſpoiled; for while the fruit is growing, there is always a bud formed by the ſide of the foot-ſtalk upon the ſame ſpur, for the next year's fruit; ſo that when the pears are ripe, if they are gently turned upward, the foot-ſtalk will readily part from the ſpur, without injuring of the bud.

The ſeaſon for gathering all ſummer pears is juſt as they ripen, for none of theſe will remain good above a day or two after they are taken from the tree; nor will many of the autumn pears keep good above ten days or a fortnight, after they are gathered. But the winter fruits ſhould hang as long upon the trees as the ſeaſon will permit, for they muſt not receive the froſt, which will cauſe them to rot, and render their juices flat and ill-taſted; but if the weather continue mild until the end of October, it will then be a good ſeaſon for gathering them in, which muſt always be done in dry weather, and when the trees are perfectly dry.

In the doing of this you ought carefully to avoid bruiſing them, therefore you ſhould have a broad flat baſket to lay them in as they are gathered; and when they are carried into the ſtore-room, they ſhould be taken out ſingly, and each ſort laid up in a cloſe heap, on a dry place, in order to ſweat, where they may remain for ten days or a fortnight, during which time the windows ſhould be open to admit the air, in order to carry off all the moiſture which is perſpired from the fruit; after this, the pears ſhould be taken ſingly, and wiped dry with a woollen cloth, and then packed up in cloſe baſkets, obſerving to put ſome wheat-ſtraw in the bottoms and round the ſides of the baſkets, to prevent their bruiſing againſt the baſkets. And if ſome thick ſoft paper is laid double or treble all round the baſket, between the ſtraw and the pears, this will prevent the pears from imbibing the muſty taſte which is communicated to them by the ſtraw, when they are contiguous; which taſte often penetrates through the ſkin ſo ſtrongly, that when the fruit is pared the taſte will remain. You ſhould alſo obſerve to put but one ſort of fruit into a baſket, leſt by their different fermentations they ſhould rot each other; but if you have enough of one ſort to fill a baſket which holds two or three buſhels, it will be ſtill better. After you have filled the baſkets, you muſt cover them over with wheat-ſtraw very cloſe, firſt laying a covering of paper two or three times double over the fruit, and faſten them down; then place theſe baſkets in a cloſe room, where they may be kept dry and from froſt; but the leſs air is let into the room, the better the fruit will keep. It will be very neceſſary to fix a label to each baſket, denoting the ſort of fruit therein contained, which will ſave the trouble of opening them, whenever you want to know the ſorts of fruit; beſides, they ought not to be opened before their ſeaſon to be eaten, for the oftner they are opened and expoſed to the air, the worſe they will keep. We doubt not but this will be objected to by many, who imagine fruit cannot be laid too thin; for which reaſon they make ſhelves to diſpoſe them ſingly upon, and are very fond of admitting freſh air, whenever the weather is mild, ſuppoſing it very neceſſary to preſerve the fruit; but the contrary of this is found true, by thoſe perſons who have large ſtocks of fruit laid up in their ſtorehouſes in London, which remain cloſely ſhut up for ſeveral months, in the manner before related; and when theſe are opened, the fruit

fruit is always found plumper and sounder than any of those fruits which were preserved singly upon shelves, whose skins are always shrivelled and dry. For (as Mr. Boyle observes) the air is the cause of putrefaction; and, in order to prove this, that honourable gentleman put fruits of several kinds into glasses where the air was exhausted, in which places they remained sound for several months, but, upon bein exposed to the air, rotted in a very short time, which plainly shews the absurdity of the common method now used to preserve fruit.

Earth-Nut PEA. See *Everlasting* PEA.

Heart PEA, [*Cardiospermum.*] A plant of which there are two species growing naturally in both the Indies, where they climb up the shrubs that grow near them; they are tender annuals, and if cultivated in England, must be raised in a hot-bed.

PIGEON-PEA [*Cytisus, Cayan.*] A species of Cytisus growing in the American Islands, and cannot be preserved in England but in a stove.

PEARL-ASHES. A salt made from the ashes of wood.

PEARL-BARLEY, [*Hordeum Perlatum.*] Barley prepared by grinding the shelled barley into little round grains.

PEAT-ASHES, are a most excellent manure for young clover and grass, vetches, and wheat sown dry in the spring of the year. They should be kept dry and entirely free from wet. The following are the observations of a judicious farmer:——

"Peat is found in most low grounds that lie betwixt hills, especially if timber has formerly stood on the spot. It lies at various depths, being often near the surface, and sometimes six, eight, or ten feet deep, having a stratum of black moory earth over it, such as is the soil of many of our low meadows near the banks of rivers: it sometimes even lies under a bed of gravel.

"Peat may be burnt, for the sake of procuring its ashes for manure all the summer season: as soon as it is dug, some of it is mixed in a heap regularly disposed with faggot wood, or other ready burning fuel: after a layer or two of it mixed in this manner, peat alone is piled up to compleat the heap. A heap will consist of from one hundred to a thousand loads.

"After setting fire to it at a proper place, before prepared for the purpose, it is watched in the burning, and the great art is to keep in as much of the smoke as possible, provided that as much vent is left as will nourish and feed the fire.

"Whenever a crack appears, out of which the smoke escapes, the labourer in that place lays on more peat; and if the fire slackens too much within, which may easily be known by the heat on the outside, the workman must run a strong pole into the heap in as many places as is necessary to supply it with a quantity of fresh air. When managed in this manner, the work goes on as it should do. It is to be noticed, that when once the fire is well kindled, the heaviest rain does it no harm whilst it is burning.

"Having procured a sufficient quantity of ashes, the farmer's next care should be to apply them properly to use; and to do this, he must be made well acquainted with the nature of the manure he is to lay on his land.

"All ashes are of a hot, fiery, caustic nature; they must therefore be used with caution. With respect to peat-ashes, almost the only danger proceeds from laying them on in too great quantities at improper seasons.

"Nothing can be better than peat-ashes for dressing low damp meadows, laying to the quantity of from fifteen to twenty Winchester bushels on an acre: it is best to sow them by hand, as they will then be more regularly spread.

"This work should be done in January or February at latest, that the ashes may be washed in towards the roots of the grass by the first rains that fall in the spring.

"If they were spread more forward in the year, and a speedy rain should not succeed, being hot in their nature, they would be apt to burn up the grass, instead of doing it any service.

"It is to be remembered, that the damper and stiffer the soil, the more peat-ashes should be laid on it; but in grass lands the quantity should never exceed thirty Winchester bushels, and on light warm lands less than half that quantity is fully sufficient.

"On wheat crops these ashes are of the greatest service, but they must be used with the utmost discretion. Were

every other conſideration, the ſole view of leſſening his expences will, it is imagined, ſufficiently induce him to be attentive to this particular.

" When peat is burnt for the ſake of its aſhes in ſummer time, it is neceſſary that ſome care ſhould be taken to defend them from the too powerful influence of the ſun, air, dews, rains, &c. or great part of their virtue would be exhaled and exhauſted. If the quantity of aſhes procured is not very great, they may be eaſily put under cover in a barn, cart-lodge, or hovel; but large quantities muſt neceſſarily, to avoid expence, be kept abroad; and when this is caſe, they ſhould be ordered as follows.

" A dry ſpot of ground muſt be choſen; and on this the aſhes are to be laid in a large heap, as near as poſſible in the form of a cone ſtanding on its baſe, the top as ſharp pointed as poſſible: when this is done, let the whole be covered thinly over with a coat of ſoil, to defend the heap from the weather: the circumjacent earth, provided it is not too light and crumbly, will always ſerve for this purpoſe.

" When thus guarded, the heap may very ſafely be left till January or February, when it is in general the ſeaſon for ſpreading it: but, before it is uſed, it is always beſt to ſift the aſhes, that the cinders, ſtones, and half burnt turf, may be ſeparated from them.

" This may, perchance, by many be eſteemed an unneceſſary trouble; but experience, which is the beſt guide, has convinced me, that by this means I can better aſcertain the quantity that ought to be ſown on the ſeveral ſorts of land; for the ſmall powdered aſhes, being equal in quality, are of courſe equal in effect; whereas, when there has been any other mixture with them, the effect has often been greater or leſs than I could have wiſhed. Thus, when I mention the number of buſhels I ſtrew on an acre, it is always to be underſtood of ſifted aſhes: ſhould any farmer be inclined to try them rough as they are firſt produced after burning, the quantity to be allowed for an acre muſt be more in proportion to the mixture of other matter that is in them.

" Theſe peat-aſhes are almoſt, as I have already obſerved, a general manure ſuited to every ſoil. On cold clay they warm the too compact particles, diſpoſe it to ferment, and of courſe fertilize, and, in fine, not only aſſiſt it in diſcloſing and diſpenſing its great vegetative powers, but alſo bring to its aid a conſiderable proportion of ready prepared aliment for plants.

" On light lands theſe aſhes have a different effect: here the pores are too large to be affected, or farther ſeparated by the ſalts or ſulphur contained in them; but, being cloſely attached to the ſurfaces of the large particles, of which this earth is generally compoſed, this manure diſpoſes them, by means of its ſalts, to attract the moiſture contained in the air; by this operation, the plants, which grow on theſe porous ſoils, are prevented from being ſcorched up and burnt; and if they want, which they generally do, more nouriſhment than the ſand is of itſelf capable of affording, this is readily and abundantly ſupplied by this uſeful manure.

" In large farms it is very uſual to ſee all the home-fields rich and well-mended by the yard-dung, &c. whereas the more diſtant lands are generally poor, impoveriſhed, and out of heart, for want of proper manure being applied in time.

" Whilſt the farmers depend almoſt entirely on the yard-dung, this cannot fail being the caſe; for dung is of very heavy carriage: they are willing, therefore, to drop it as near home as poſſible, being in this way able to do a great deal more work in the ſame ſpace of time: but would they once try the virtue of peat-aſhes, all their lands might be alike improved, though at a very conſiderable diſtance from the home-ſtall; for ſo few of them are required, and they are ſo light of carriage, that a ſingle tumbril will hold as many as ought, in moſt caſes, to be laid on two acres of land; by which means, when theſe aſhes are uſed as a dreſſing for the diſtant fields, it coſts the farmer leſs in carriage than does that of the ſtable-dung for his home-fields."

PECK. A meaſure containing two gallons, or 8 quarts.

PELLITORY, *of the Wall*, [*Parietaria.*] This is a ſmall plant, growing upon old walls; of an herbaceous, ſubſaline taſte, without any ſmell. It is one of the five emollient herbs, and in this intention is occaſionally made uſe

uſe of. It is an ingredient in the nephritic decoction of the Edinburgh pharmacopœia. The expreſſed juice has been given in the doſe of three ounces as a diuretic.

PELLITORY *of Spain*, [*Pyrethrum.*] This plant, though a native of the warm climates, bears the ordinary winters of this; and often flowers ſucceſſively, from Chriſtmas to May; the roots alſo grow larger with us than thoſe which the ſhops are uſually ſupplied with from abroad.

Pellitory root has no ſenſible ſmell; its taſte is very hot and acrid, but leſs ſo than that of arum or dracunculus: the juice expreſſed from it has ſcarce any acrimony, nor is the root itſelf ſo pungent when freſh as after it has been dried. Water, aſſiſted by heat, extracts ſome ſhare of its taſte, rectified ſpirit the whole; neither of them elevate any thing in diſtillation. The principal uſe of pyrethrum in the preſent practice is as a maſticatory, for promoting the ſalival flux, and evacuating viſcid humours from the head and neighbouring parts; by this means it often relieves the tooth-ach, ſome kinds of pains of the head, and lethargic complaints.

PELT. By this name is called the dead body of any fowl an hawk hath killed.

PELT-WOOL. Is the wool pulled off the ſkin or pelt of any dead ſheep.

PENNY-EARTH. A term uſed by the farmers for a hard, loamy, or ſandy earth, with a very large quantity of ſea ſhells intermixed in it; ſome of which being round and flat, and in ſome meaſure reſembling pieces of money, have occaſioned the earth's being called by this name. It is an earth not eaſily dug, but is uſually undermined with pickaxes, and then falls in large lumps; which, with the froſts, break to pieces, and leave the ſhells looſe. It is prepared by breaking and mixing well with water, and then makes very deſirable floors. The Jerſey combers comb-pots are alſo made of it, and the ſides and roofs of ovens are plaiſtered with it; and, being rightly managed, it combines into a flower almoſt as ſtrong as plaiſter of Paris.

PENGUIN, [*Karatas.*] Wild ananas. This plant is very common in the Weſt-Indies, where the juice of its fruit is often put into punch, being of a ſharp acid flavour. There is alſo a wine made of the juice of this fruit, which is very ſtrong, but it will not keep good long, ſo is only for preſent uſe. This wine is very intoxicating, and heats the blood, therefore ſhould be drank very ſparingly.

In England this plant is preſerved as a curioſity, for the fruit ſeldom arrives to any degree of perfection for uſe in this country, though it often produces fruit in England, which has ripened pretty well; but if it were to ripen as thoroughly here as in its native country, it will be little valued on account of its great auſterity, which will often take the ſkin off from the mouths and throats of thoſe people who eat it incautiouſly.

This plant is propagated by ſeeds, for though there are often ſuckers ſent forth from the old plants, yet they come out from between the leaves, and are ſo long, ſlender, and ill-ſhapen, that if they are planted they ſeldom make regular plants. Theſe ſeeds ſhould be ſown early in the ſpring in ſmall pots, and plunged into a hot-bed of tanners bark, where the plants will come up in ſix weeks. When the plants are ſtrong enough to tranſplant, they ſhould be carefully taken up, each planted into a ſeparate pot, and plunged into the hot-bed again; when the plants have taken new root, they ſhould have air and water in proportion to the warmth of the ſeaſon. In this bed the plants may remain till Michaelmas, then they ſhould be removed into the ſtove and plunged into the bark-bed, where they ſhould be treated in the ſame manner as the Ananas.

The leaves of this plant are ſtrongly armed with crooked ſpines, which render it very troubleſome to ſhift or handle them; for the ſpines catch hold of whatever approaches them by their crooked form, being ſome bent one way, and others the reverſe, ſo that they catch both ways, and tear the ſkin or clothes of the perſons who handle them, where there is not the greateſt care taken to avoid them.

PENNY-ROYAL, [*Pulegium.*] This plant grows ſpontaneouſly in ſeveral parts of England upon moiſt commons, and in watery places; trailing upon the ground, and ſtriking roots

roots at the joints. Our markets have been for some time supplied with a garden sort, which is larger than the other, and grows upright: this is called by Mr. Dale *pulegium erectum*.

Pennyroyal is a warm, pungent herb, of the aromatic kind, similar to mint, but more acrid and less agreeable; it has long been held in great esteem, and not undeservedly, as an aperient, and deobstruent, particularly in hysteric complaints, and suppressions of the uterine purgations. For these purposes the distilled water is generally made use of, or what is of equal efficacy, an infusion of the leaves. It is observeable, that both water and rectified spirit extract the virtues of this herb by infusion, and likewise elevate greatest part of them in distillation.

In the shops are kept a simple and spirituous water and essential oil of the plant; this herb is used also in the compound valerian water and troches of myrrh, and its simple water for making the lac ammoniac and the camphorated emulsion.

Hart's PENNYROYAL, [*Pulegium erectum.*] This species is met with, though not very often, in our gardens. It is somewhat stronger, yet rather more agreeable, than the foregoing, both in taste and smell.

Marsh PENNYROYAL, Water Navel-wort.

PEONY, [*Paeonia.*] The species are 1. The male. 2. The female. 3. The foreign Peony. 4. The Portugal Peony. 5. Tartarian Peony. They are all annual in stalk, and perennial in root; their propagation is easy by dividing the roots in August or September.

PEPPER, [*Piper.*] The pepper plant is a shrub whose root is small, fibrous, and flexible; it rises into a stem, which requires a tree or a prop to support it. Its wood has the same sort of knots as the vine; and when it is dry, it exactly resembles the vine-branch. The leaves, which have a strong smell and pungent taste, are of an oval shape; but they diminish towards the extremity, and terminate in a point. From the flower-buds, which are white, and are sometimes placed in the middle, and sometimes at the extremity of the branches, are produced small berries resembling those of the currant-tree. Each of these contains between twenty & thirty corns of pepper; they are commonly gathered in October, and exposed to the sun seven or eight days. The fruit, which was green at first, and afterwards red, when stripped of its covering, assumes the appearance it has when we see it. The largest, heaviest, and least shrivelled, is the best.

The pepper-plant flourishes in the islands of Java, Sumatra, and Ceylon, and more particularly on the Malabar coast. It is not sown, but planted; and great nicety is required in the choice of the shoots. It produces no fruit till the end of three years; but bears so plentifully the three succeeding years, that some plants yield between six and seven pounds of pepper. The bark then begins to shrink, and the shrub declines so fast, that in twelve years time it ceases bearing.

The culture of pepper is not difficult; it is sufficient to plant it in a rich soil, and carefully to pull up the weeds that grow in great abundance round its roots, especially the three first years. As the sun is highly necessary to the growth of the pepper plant, when it is ready to bear, the trees that support it must be lopped, to prevent their shade from injuring the fruit. When the season is over, it is proper to crop the head of the plant. Without this precaution, there would be too much wood, and little fruit.

Long PEPPER, [*Piper Longum.*] This is the fruit of a plant growing also in the East-Indies. It is of a cylindrical figure, about an inch and a half in length; the external surface appears composed of numerous minute grains disposed round the fruit in a kind of spiral direction.

Jamaica PEPPER. This is the produce of our own plantations; it is the fruit of a large tree, growing spontaneously in the mountainous parts of Jamaica, called by Sir Hans Sloan, *myrtus arborea, aromatica, foliis laurinis.* The smell of this spice resembles a mixture of cinnamon, cloves and nutmegs: its taste approaches to that of cloves, or a mixture of the three foregoing; whence it has received the name of *all-spice.* The shops have been for some time accustomed to employ this aromatic as a succedaneum to the more costly spices, and from them it has been introduced into our hospitals: the London college have given it a

place

place in their late diſpenſatory, and direct a ſimple water to be diſtilled from it, which poſſeſſes the flavour of the pimento in great perfection. It yields a large quantity of pleaſant eſſential oil, which ſinks in water; this oil is recommended in the Edinburgh pharmacopœia. Rectified ſpirit extracts its pungency and flavour, and elevates nothing in diſtillation.

Guinea PEPPER. Capſicum.

Wall PEPPER, [*Sedum acre.*] This plant grows very common upon old walls, in all parts of England.

Water PEPPER. See *Biting Arſmart.*

Poorman's PEPPER, } See *Dittander.*
PEPPERWORT, }

PEPPERMINT, [*Mentha piperis.*] This ſpecies has been lately introduced into practice, and received for the firſt time in our preſent pharmacopœia: very few of the botanical or medical writers make mention of it; it grows wild in ſome parts of England, in moiſt watery places, but is much leſs common than the other ſorts. The leaves have a more penetrating ſmell than any of the other mints, and a much warmer, pungent, glowing taſte like pepper, ſinking as it were into the tongue. The principal uſe of this herb is in flatulent cholics, languors, and other like diſorders: it ſeems to act as ſoon as taken, and extends it effects through the whole ſyſtem, inſtantly communicating a glowing warmth. Water extracts the whole of the pungency of this herb by infuſion, and elevates it in diſtillation.

PERENNIAL, [*Perennis.*] Perennial, or everlaſting plants; plants that are perpetuated by the roots, that is, whether their leaves and ſtalks decay annually in winter, or always remain, provided the roots of ſeveral years duration, they are ſtill perennial plants.

All plants, therefore, with abiding roots, both of the herbaceous tribe in general, and of the ſhrub and tree kinds, are perennials; though in the general acceptation of the word perennial, it is moſt commonly applied to herbaceous vegetables with durable roots, more eſpecially thoſe of the flowery kind, which among the gardeners are commonly called ſimple perennials, particularly the fibrous-rooted tribe; but it is equally applicable to fibrous, tuberous, and bulbous-rooted plants, whoſe roots are of ſeveral years duration: likewiſe all ſhrubs and trees of every denomination, as having abiding roots, are alſo perennial plants.

Perennial plants conſiſt both of deciduous and ever-green kinds; thoſe that caſt their leaves &c. in winter are termed deciduous perennials, and thoſe which retain their leaves evergreens.

Of the herbaceous perennials, however, both of the fibrous-rooted tribe, tuberous and bulbous-rooted kinds, far the greater part have annual ſtalks, riſing in ſpring and decay in winter; and a great many loſe their leaves entirely alſo in that ſeaſon, ſuch as the perennial ſun-flower, aſters, and numerous other ſorts; and many ſorts retain their leaves all the year, but not their ſtalks, exemplified in the auricula, polyanthus, ſome *campanulas*, pinks, carnations, and many others.

Great number of the herbaceous perennials multiply exceedingly by offſets of the root, by which they are propagated in great abundance.

All the tree and ſhrub perennials are durable both in root, ſtem, and branch; but all renew their leaves annually, even the ever-green kinds, although they are in leaf the year round, yet they put forth new leaves every year, to which the old ones gradually give place.

PERIWINKLE, [*Vinca.*] There are three pecies, the narrow, the broad-leaved, and the oval; they are eaſily propagated by their trailing ſtalks, which put out roots freely.

PERRY. A vinous liquor made of pears, as cyder is made of apples. *See* CYDER. The beſt pears for perry, or at leaſt the ſorts which have been hitherto deemed the fitteſt for making this liquor, are ſo exceſſively tart and harſh, that no mortal can think of eating them as fruit; for even hungry ſwine will not eat them, nay, hardly ſo much as ſmell to them. Of theſe the Boſbury pear, the Bareland pear, and the horſe pear, are the moſt eſteemed for perry in Worceſterſhire, and the ſquaſh pear, as it is called, in Gloceſterſhire; in both which counties, as well as in ſome of the adjacent parts, they are planted in the hedge-rows and moſt common fields.

There is this advantage attending pear trees, that they will thrive on land where apples will not ſo much as live,

and that ſome of them grow to ſuch a ſize, that a ſingle pear tree, particularly of the Boſbury and the ſquaſh kind, has frequently been known to yield, in one ſeaſon, from one to four hogſheads of perry. The Boſbury pear is thought to yield the moſt laſting and moſt vinous liquor. The John pear, the Harpy pear, the Drake pear, the Mary pear, the Lullum pear, and ſeveral others of the harſheſt kinds, are eſteemed the beſt for perry, but the redder or more tawney they are, the more they are preferred. Pears, as well as apples, ſhould be full before they are ground.

PERUVIAN BARK. *See* BARK.

ST. PETER's-WORK, [*Aſcyrum.*] This plant has a perennial root with an annual ſtalk; it is of little uſe or beauty.

PETTYWHIN. Furze. *Cammock.*

PHEASAN T's EYE, [*Adonis.*] *See* ADONIS.

PHYSIC *for a Horſe.* There are a great variety of occaſions on which this creature may want purging, and many ſorts of phyſic may anſwer the purpoſe; but before we come to the method of preparing any of theſe, it will be neceſſary to give the farmer proper directions concerning the uſe of ſuch medicines. A horſe muſt be prepared for a purge the day before it is given him, or it will take very little effect; and then it will operate more or leſs, according to the management of him during the time.

The day before a horſe is to be purged, give him a good quantity of water with ſcalded bran in it, and let him have it warm. Keep him quiet, and the next morning, before he has any thing to eat, give him the purge. Any one of the following will anſwer the common purpoſes, with little charge.

1. *A Purge with Aloes.*

Take an ounce and a quarter of horſe-aloes beaten to powder, and a quarter of an ounce of cream of tartar, and half an ounce of powder of anniſeeds, work this up into a conſiſtence, and roll it round into two balls. Rub theſe over with butter, and give them to the horſe; they will, by means of being greaſed, ſlip down very freely; and after them give him a horn of ſmall beer made warm.

The doſe is to be made larger or ſmaller, as the horſe is larger and coarſer fed, or finer limb'd, and managed more delicately. There is as much difference between the conſtitution of a cart-horſe and a racer, as between a drayman and a perſon of quality; and they muſt in all reſpects be treated accordingly, not only in the ſtrength of the doſe, but in the management afterwards: for what ſuits one will be quite improper for the other.

2. *A Purge with Jalap.*

Take powder of aloes an ounce, powder of jalap a quarter of an ounce, and powdered ginger a dram: mix all theſe up with two ounces of freſh butter, and make the whole into a couple of balls, or more; greaſe them on the outſide, and give them to the horſe with ſome warm ale afterwards.

Theſe are two common receipts, but they are often ill proportioned in the quantities; ſomething of this kind ſtands under the name of a purge for horſes in moſt books that treat of theſe things; but the quantity of the anniſeeds is too great, in the common directions for the firſt; and this will make a horſe ſick afterwards; and to the other there are commonly added uſeleſs ingredients. Theſe are approved proportions, and they will anſwer almoſt every occaſion there can be for a horſe's being phyſicked in this way.

Let the balls and the beer be given him early in the morning, and let him then be rid out gently for a quarter of an hour. Then bring him cool in, and let him be ſet up two hours without food.

After this time give him a ſmall quantity of good hay, and a quarter of an hour after that ſome warm water.

An hour after this give him ſome ſcalded bran. He will purge kindly after this manner of management; and after this he ſhould be rid out a little again; then when he is brought in, he ſhould have ſome bran and water warm, with but a ſmall quantity of the water. Then let him be rid out again; in this manner a horſe is to be treated with his purge, and, in general, it will be eaſy to make him work more or leſs at pleaſure, by giving him more or leſs exerciſe, and more or leſs of the bran and water.

If

If the purge has been too violent, and will not ſtop, the following aſtringent drink will always ſtop it.

An Aſtringent Drink.

Boil three pints of ſtale beer, and ſome pieces of cruſt of brown bread: to this put an ounce of whiting, and a quarter of an ounce of diaſcordium, made with not honey; if this does not ſtop it in four or five hours, give the ſame quantity of whiting and double the quantity of diaſcordium in only one pint of the beer and bread. This will make him altogether quiet and eaſy, and he will be in his body as uſual.

For a Cold.

This is a diſorder ſo well underſtood, that it cannot be miſtaken, nor does it need any explanation.

Boil in a quart of ale three ounces of freſh liquorice-root, beat very fine into threads. Strain the liquor off, preſſing it hard, and add to it three drams of elecampane powder, one dram of powder of anniſeeds, a quarter of a pint of oil, and a quarter of a pound of honey; mix all well, and give it warm. If it does not take effect the firſt time, let it be repeated three or four times, and it ſeldom fails.

Balls for a Cough of long ſtanding.

Put into a large bowl ſix pounds of wheat meal, mix with it two ounces of powder of anniſeeds, cummin-ſeed one ounce, linſeed three ounces, fenugreek-ſeed one ounce and a half; ſtir theſe well about, then mix half a pound of liquorice powder, and a quarter of a pound of flour of brimſtone: add theſe to the reſt. Laſtly, add bay-berries and Juniper-berries, powdered, three ounces of each, and the ſame quantity of powder of elecampane.

When all are well ſtirred and mixed together, break ſix eggs, throw away the whites, beat up the yolks with two quarts of mountain wine. Add to this a pound and a half of honey and a pint of ſallad oil. Mix all theſe perfectly well together; then bring in the powder, and work the whole to a paſte. If this ſhould be too ſtiff, a little more wine muſt be added; and, if too ſoft, ſome flour muſt be put in, till the whole be of ſuch a conſiſtence that it will conveniently roll into balls.

Theſe are to be made of the bigneſs of a hen's egg, but round. This rolling them up is only for the convenience of keeping; when they are to be uſed, they are to be diſſolved. Two is the proper quantity for a doſe, and they are to be melted in the creature's water, morning and evening, for fifteen days.

PHYSIC NUT. *See Phyſic* NUT.

PIGEON. It is a great recommendation of any creature to the farmer, that it will be kept at ſmall expence, and this is the caſe with the pigeon, which he ſhould keep; for there are ſome kinds that require a great deal of food and charge: the proper pigeon for the dovecoat, which is the only kind he is to regard, is able the greateſt part of the year to provide for itſelf; and when it requires his aſſiſtance, the food is not of any dear kind.

There are at this time many kinds of pigeons kept in England, by people fond of curioſity, and it has become a ſtudy to procure and raiſe new kinds among thoſe who are called pigeon-fanciers, as much as to get from abroad, or raiſe from ſeed, new kinds of carnations or auriculas among the floriſts. But with this the induſtrious huſbandman has nothing to do. He is to keep pigeons for their value, not their beauty; and he is to conſider which may be kept with moſt eaſe, which is in his way one of the greateſt of recommendations to any thing.

Not to enter into the nice diſtinctions of the kinds which are of late years become endleſs and innumerable, we may ſay in general that there are two ſorts; the tame, and dovecoat pigeon. The tame pigeon is valued not only for beauty, but for the largeneſs of its body; the common pigeon, which is the kind uſually kept in dovecoats, and thence called the dovecoat pigeon, is ſmaller, and leſs beautiful.

The tame kind generally have but two young ones at a brood; but they make ſome amends for the ſmallneſs of the number by the frequency of their hatching; for, if well fed and tended, they will have young ones every month.

For the choice of theſe the beauty is generally moſt regarded; but there

ſhould be care taken to pair them well, and this is the more worth while becauſe they are not apt to ſeperate afterwards.

They muſt be kept clean, for they hate dirt, though they make a great deal of it. But their food is ſo dear, that few but thoſe who know very well how to manage them care to meddle with them. Their beſt food is tares or white peaſe, and they ſhould have beſide this ſome gravel ſcattered about, and clean water at all times: and a great deal of care muſt be taken to preſerve them from vermin, and their eggs from the ſtarlings and other birds, which always haunt the places where they are kept, in order to ſuck them.

In order to the perfect thriving of theſe pigeons, it will be proper, beſide their food, gravel, and water, always to let there be ſome ſalt, clay, or ſome other thing with ſea ſalt in it, for them to peck at their pleaſure

We have ſaid thus much with reſpect to the management of the tame pigeon, for the information of ſuch as may chuſe to breed them, and have not had opportunities of ſeeing it done; and it will be proper to add here, that although the expence and trouble they occaſion, be more than is worth the huſbandman's while in general to give himſelf; yet there is this advantage, that their dung is richer than that of the common pigeon as a manure.

After this ſhort account of the tame, we come to the conſideration and management of the common or dovecoat pigeon, which is a ſubject that demands, and deſerves the huſbandman's utmoſt regard.

The keeping of pigeons is a great advantage to every farmer that may do it; and they bring in a great profit for a very ſmall expence in all places; but they thrive beſt in open countries, becauſe there is uſually moſt corn there, and they feed with leſs danger, the hedges in incloſed places ſheltering people while they ſhoot them.

There are ſome counties where the huſbandmen ſow great quantities of horſe beans and grey peaſe, and in theſe particularly the pigeons feed to a great advantage. Theſe ſorts of pulſe are ſowed earlier than other kinds of grain; and their early feeding upon them makes them healthful and ſtout at thoſe times, and is an occaſion of their breeding earlier than they do elſewhere, which is a conſideration of great importance.

The common blue pigeon is properly the dovecoat breed; and it has the advantage of many other kinds, in that it is hardier, and will live in the worſt winters.

If it be too ſmall for the farmer's purpoſe, he may mend the breed by putting in a few tame pigeons of the moſt common kind, and the leaſt conſpicuous in their colours, that the reſt may the better take to them by finding them more like themſelves; this, however, is to be done with caution, and never without a due conſideration; for though the bigneſs of a pigeon's body is a plain advantage, yet it is very well known in the kinds in general, that the ſmalleſt bodyed are the beſt breeders.

The ringdove has been by ſome introduced into the dovecoat, by ſetting the eggs under a common pigeon; they will in this caſe live, and take the chance among the pigeons; and they have two advantages over them, the one in their largeneſs, and the other in their hardyneſs; for they will endure any weather, and live upon any food.

The huſbandman ſhould have a very careful eye upon the proportion of the ſexes among his pigeons; for there is nothing ſo hurtful as the having too many cocks, eſpecially if they keep the larger or tame kind. It is his buſineſs to keep his dovecoat well ſtock'd; and moſt people who keep them make their conſciences eaſy about deluding away thoſe belonging to their neighbours; but this abundance of cocks thins the dovecoat, for they grow quarrelſome, and will beat others away; till by degrees a very thriving dovecoat ſhall be by this ſingle miſtake reduced to a poor condition.

A very cheap and eaſy way of making a dovecoat is to build the walls with clay mixed with ſtraw, they may be made four feet or more in thickneſs, and while they are wet it is eaſy to cut holes in them with a chiſſel or other inſtrument.

This kind of dovecoat, beſide its cheapneſs, has the advantage of great warmth, and no building agrees better with the pigeons. A dovecoat of this kind, of four yards ſquare in the clear, may be built for about five pounds.

The holes ſhould be made about fourteen

fourteen inches deep, and a little dipping backward. The Rev. Mr. Lawrence who uſed this method of building his dovecoat ſays, that the pigeons proſpered in it better than in any brick or ſtone building he had ſeen.

Of whatever materials the coat be erected, it ſhould be white-waſhed frequently on the outſide. The pigeon, as has been ſaid already, is a cleanly bird: it loves the appearance of neatneſs; and beſide the white colour, renders the building more conſpicuous.

As to the food of pigeons, beſide the peaſe, and tares already mentioned, barley is very proper, heartening them very much, and making them lay; and for the ſame purpoſe buckwheat is alſo an excellent as well as cheap food.

For the greateſt part of the year, however, the common pigeons in a dovecoat take care of themſelves, and need no food from their keeper. There are only two ſeaſons at which it is neceſſary or proper to feed them. One of theſe times is the depth of winter, when the ground is covered with ſnow, or hardened ſo by froſt, that nothing is to be got; and the other is, the middle or latter end of June.

The reaſon of feeding them in the firſt of theſe ſeaſons is obvious; the latter, the farmers, when they ſpeak of this fowl, call benting time. There is a graſs called bent graſs, the ſeed of which is ripe about this ſeaſon, and is the only food of that kind the pigeons can eaſily get, the peaſe being not yet ripe. This is a very poor food, and the pigeons at this ſeaſon uſually have many young broods; ſo that they will be ſtarved if they are left to this poor diet: and the farmer will always find his account in giving them food at this ſeaſon, as well as at the other. This laſts however but a ſmall time; and the other is only neceſſary at the ſevereſt days of winter; ſo that the pigeon is at the utmoſt but a ſmall expence, and that for a very ſhort time.

Beſide the food, the breeder of tame pigeons has been adviſed to give them a lump of ſalted clay, and the ſame indulgence muſt be ſhewn to theſe. But as they are more numerous, there is to be a larger allowance. A large heap of clay ſhould be laid near the dovecoat, and the brine of the family continually beaten in among it. Another way is to make a kind of mortar with lime, ſand, clay, and ſalt, which they will peck with great ſatisfaction. The pigeons themſelves have pointed out this method, for they are continually pecking at the joints of walls to get out the mortar. When it is thus made on purpoſe for them, it is beſt to make it thin, and keep it ſo by often beating it up with brine.

In ſome places they lay what is called a ſalt cat, near the dovecoat. This is a large lump of ſalt made for the purpoſe at the ſalt pans; and is the method commonly taken where there are works in the neighbourhood, but the way of uſing ſalt in a mixture with clay is better.

What is found by experience to anſwer beſt of all is this. A heap of loam is to be laid near the dovecoat, and beat up to a kind of pap with brine or water; into this is to be thrown a large quantity of bay ſalt, and a little ſaltpetre, and with it a ſhovel full or two of large coarſe ſand. When brine is uſed to beat up the loam, leſs ſalt is to be uſed; and when water, there muſt be the more of it in proportion. And in the ſame manner, if the loam contain a great deal of ſand, the leſs is to be added to it; and if it contain leſs, the more is to be given. Where loam is not to be had, clay will do, but then a much larger quantity of ſand muſt be put in; and the beſt ſand for this purpoſe is large coarſe ſea ſand, which is already impregnated with ſalt water; or that which is got in ſcreening of gravel.

It is a very ſingular thing, that the pigeon loves ſalt in this manner; and its fondneſs for ſaltpetre, which is very great, is not ſo well known; though this might have been diſcovered by obſerving the liking this bird has to the mortar in old walls, which contains a ſalt very nearly allyed to the common ſaltpetre.

Salt is not only uſeful in this manner to pleaſe the pigeons, when they are in health, but nothing recovers them ſo readily from ſickneſs. A mixture of bay ſalt and cummin ſeed being with them an univerſal remedy.

A great many contrivances have been publiſhed; and many more are handed about among the country people as great ſecrets, for the making the pigeons love their habitation, and tempting

tempting ſuch ſtragglers from their neighbours as chance to come to the coat to ſettle in it. Some have adviſed the uſe of aſſafœtida, and others of cummin ſeed before mentioned for this purpoſe; but the beſt method of all others is to keep up conſtantly ſuch a heap of ſalted loam as before deſcribed; this they love, and they will therefore ſtay where they can have it in plenty. This contrivance, with the addition of keeping the dovecoat neat and clean, and not ſuffering them to be diſturbed in it, will be ſure to keep the ſtock in good number, and too likely to increaſe it at the expence of the neighbours.

The profit of pigeons is very conſiderable, and very certain; for they breed very faſt, and there is a conſtant demand for them. Near great towns it may be worth while to keep ſome of the large tame kind; becauſe although they cannot be fed but at a large expence, yet their young come ſo early, and are ſo fat and fine, that they command a price, which very well returns it; but in the country, the common pigeon is the proper kind; for though the price that the birds fetch is not nearly ſo great, their number, and ſmall expence of keeping, very well make amends.

PILEWORT, *(Chelidonium minus.)* This is a very ſmall plant, found in moiſt meadows and by hedge ſides: the roots conſiſt of ſlender fibres, with ſome little tubercles among them, which are ſuppoſed to reſemble the hæmorrhoids; from whence it has been concluded, that this root muſt needs be of wonderful efficacy for the cure of that diſtemper: to the taſte, it is little other than mucilaginous.

PIMENTO. Jamaica pepper.

PIMPERNEL, *(Anagallis.)* Common male and female pimpernel. This is a low plant, in appearance reſembling chickweed; but eaſily diſtinguiſhable by its leaves being ſpotted underneath, and joined immediately to the ſtalk. The male and female pimpernels differ no otherwiſe than in the colour of their flowers: they are both found wild in the fields, but the male or red flowered ſort is moſt common.

Both the Pimpernels have an herbaceous, roughiſh taſte, with little or no ſmell. Many extraordinary virtues have been attributed to them. Geoffroy eſteems them cephalic, ſudorific, vulnerary, antimaniacal, antepileptic, and alexaterial. Tragus, Caſpar, Hoffman, Michaeli, and others, are alſo very liberal in their praiſes: one of theſe gentlemen declares, that he has known numerous inſtances of the ſingular efficacy of a decoction and tincture of pimpernel, in maniacal and melancholic deliria. But later practitioners have not been ſo happy as to meet with the like ſucceſs. Pimpernel is not unfrequently taken as food; it makes no unpleaſant ſallad; and in ſome parts of this kingdom, is a common potherb. A ſpirituous tincture of it contains nothing valuable: the only preparation that promiſes any utility, is an extract made with water; or the expreſſed juice depurated and inſpiſſated.

Water PIMPERNEL, [*Samolus.*] This plant grows wild in ſwampy places, where the water uſually ſtands in winter, and is ſeldom preſerved in gardens. It is an annual plant, which flowers in June, and the ſeeds are ripe in Auguſt; at which time, whoever hath a mind to cultivate this plant, ſhould ſow the ſeeds on a moiſt ſoil, where the plants will come up, and require no farther care but to keep them clear from weeds.

PINE, [*Pinus.*] The ſpecies are, 1ſt, the wild or Scotch pine, or Scotch fir.

This is called by us the Scotch fir, becauſe it grows naturally on the Highlands of Scotland, where the ſeeds, falling from their cones, come up and propagate themſelves without any care. But it is not in Scotland only that theſe trees thrive naturally; for they grow ſpontaneouſly in Denmark, Norway, and Sweden. And though, from the above inſtances, it would ſeem that they delighted principally in theſe northern parts; yet when the plants are properly raiſed and planted out, no climate comes amiſs to them, for they will thrive and grow to be good timber trees in almoſt any part of the world.—The timber of this tree is what we call deal; is ſometimes red, ſometimes yellow, but chiefly white.

2. *The Weymouth Pine.* This grows naturally in moſt parts of North America, where it is called the white pine. It is one of the talleſt trees of all the ſpecies, often growing a hundred feet high in thoſe countries. The bark of this tree is very ſmooth and delicate, eſpecailly

especially when young; the leaves are long and slender, five growing out of each sheath; the branches are pretty closely garnished with them, so make a fine appearance; the cones are long, slender, and very loose, opening with the first warmth of the spring, so that if they are not gathered in winter, the scales open and let out the seeds. The wood of this sort is esteemed for making masts for ships; it is in England titled Lord Weymouth's, or New-England Pine. As the wood of this tree was generally thought of great service to the navy, there was a law made in the ninth of Queen Anne for the preservation of the trees, and to encourage their growth in America; and it is within these forty years that these trees began to be propagated in England in any plenty, though there were some large trees of this sort growing in two or three places long before, particularly at Lord Weymouth's, and Sir Wyndham Knatchbull's in Kent; and it has been chiefly from the seeds of the latter that the much greater number of these trees now in England have been raised; for although there has annually been some of the seeds brought from America, yet these have been few in comparison to the produce of the trees in Kent; and many of the trees which have been raised from the seeds of those now produce plenty of good seeds, particularly the trees in the gardens of his Grace the Duke of Argyle at Whitton, which annually produce large quantities of cones.—This sort and the Scotch Pine are the best worth cultivating of all the kinds for the sake of their wood; the others may be planted for variety in parks, &c. where they make a good appearance in winter, when other trees are destitute of leaves.

3. *The Cultivated Pine-tree*, commonly called *the Stone Pine*. The Stone Pine is a tree of which there should be a few in all plantations of ever-greens. It will grow to a considerable height, and arises with a strait and fair stem, though with a rough bark. The leaves will contribute to the diversifying the scene, as they differ in colour from the other sorts, and are arranged in a different manner. The cones which it bears are monstrously large and turbinated; they strike the eye by their bold appearance when hanging on the trees, and afford pleasure upon being more closely examined, from the beautiful arrangement of their scales. They produce a large kernel as sweet to the taste as an almond, which formerly were kept in the shops and sold for restoratives, but are at present neglected. In Italy, the kernels are served up in deserts at the table, and are thought to be salutary in colds, coughs, and consumptions. Its timber is not quite so valuable as the other sorts. The colour is not the same in all trees; some exhibiting their timber of a very white colour, others are yellower, and smell stronger of turpentine.

4. *The Swamp Pine-tree*. This is a very large growing tree, and is highly proper, as its name imports, to be planted in moist places.—The leaves are long, of a delightful green colour; three issue out of each sheath, and adorn the younger branches in great plenty.—Its propagation is the same as the Weymouth Pine; and the planting out, and after management of the trees, should be exactly similar.—It will grow well on all upland and dry grounds; but it chiefly delights in moist places.

5. *The Cembra Pine*. The Cembra Pine is a fine tree; the leaves are very beautiful, being of a lighter green than most of the sorts, and are produced five in a sheath. The leaves are long and narrow; and as they closely ornament the branches all round, they look beautiful, and render the tree on that account very valuable. The cones of this tree also have a good effect; for they are larger than those of the Pineaster, and the squamæ are beautifully arranged. This tree is a native of the Alps, and is well described by Mr. Harte, in his elegant essays on husbandry, under the title of *Alpine nuffi* Pine. He considers it as a tree likely to thrive with great advantage on our bleak, barren, rocky, and mountainous lands; even near the sea, and in north or north-easterly aspects, where something of this hardy kind is much wanted. The timber is large, and has many uses, especially within doors, or under cover. The bark of the trunk or bole of the tree is not reddish like the bark of the Pine, but of a whitish cast, like that of the Fir. The shell which incloses the kernel is easily cracked, and the kernels are covered with a brown skin which peels off. They are about the size of a common pea, triangular like buck-wheat, and white and soft as a blanched almond,

mond, of an oily agreeable taſte, but leaving in the mouth *that* ſmall degree of aſperity which is peculiar to wild fruits, and not unpleaſing. Theſe kernels ſometimes make a part in a Swiſs deſert. Wainſcotting, flooring, and other joiners work, made with the planks of Aphernouſli, are of a finer grain, and more beautifully variegated than deal, and the ſmell of the wood is more agreeable. From this tree is extracted a white odoriferous reſin. On this occaſion the curious planter may conſult a very ſcarce piece, *De Arboribus Coniferis*, written about 200 years ago, by Pietro Belloni.—In the plantations belonging to Jeremiah Dixon eſq; at Gleddow near Leeds, may be ſeen ſeveral of theſe Pines. They are there called the Gleddow Pine.

6. *The Silver Fir-tree.* This is a noble upright tree. The leaves grow ſingly on the branches, and their ends are ſlightly indented. Their upper ſurface is of a fine ſtrong green colour, and their under has an ornament of two white lines, running lengthways on each ſide the midrib, on account of which ſilvery look this ſort is called the Silver Fir. The cones are large, and grow erect; and when the warm weather comes on, they ſoon ſhed their ſeeds; which ſhould be a caution to gather the cones before that happens.——This tree is common in the mountainous parts of Scotland, and in Norway, and affords the yellow deals. From its yielding pitch, it has obtained the title of *Picea*, or Pitch-tree.

7. *The common Spruce Fir-tree.* The Spruce Fir is a beautiful tree, as well as a valuable one for its timber, producing the white deal. It is a native of Norway and Denmark, where it grows ſpontaneouſly, and is one of the principal productions of their woods. It alſo grows plentifully in the Highlands of Scotland, where it adorns thoſe cloud-capped mountains with a conſtant verdure. The longconed Corniſh Fir is a variety of this tree, and differs ſcarcely in any reſpect, except that the leaves and the cones are larger. As gardeners generally receive it as a diſtinct Fir, it may not be amiſs to mention it here; though we own the difference is ſo inconſiderable as to make it hardly worth ſeeking after; and though the cones are rather longer than the other ſort, yet of that alſo the cones are very large, oftentimes near a foot; ſo that they may eaſily paſs the one for the other, as they both hang down alike.

8. The Canada Pine. *Hunter's Evelyn.*

For the cultivation of Pine, ſee FIR.

PINEASTER, *(Pinus Sylveſtris.)* A ſpecies of Pine growing wild on the mountains of Italy.

PINE-APPLE, [*Ananas.*] Of this plant there are ſeveral varieties differing in the ſhapes, ſize, and colour of their fruits. The moſt eſteemed are, 1. Oval ſhaped with white fleſh, or the green pine. 2. Pyramidal, or ſugar-loaf pine-apple, with yellow fleſh. 3. Green Sugar-loaf. 4. Black Antigua or Ripley pine-apple. 5. Shining Green-leaved pine, with ſcarce any ſpines; or the King pine. 6. Granada Pine with marbled leaves. 7. Bogwarp pine, with broad green leaves. 8. Smooth long narrow leaved pine. 9. Gold-ſtriped leaved pine. 10. Silver-ſtriped leaved pine.

Of the above ſorts the two former are chiefly eſteemed, and the latter preferred moſt of all.

The plants are propagated by planting the crowns which grow on the fruit, or the ſuckers which are produced either from the ſides of the plants, or under the fruit, both which have been found equally good; although by ſome perſons the crown is thought preferable to the ſuckers, as ſuppoſing it will produce fruit ſooner than the ſuckers, which is certainly a miſtake.

The ſuckers and crowns muſt be laid to dry in a warm place for four or five days, or more (according to the moiſture of the part which adhered to the old plant or fruit); for if they are immediately planted, they will rot. The certain rule of judging when they are fit to plant, is by obſerving if the bottom is healed over and become hard; for if the ſuckers are drawn off carefully from the old plants, they will have a hard ſkin over the lower part, ſo need not lie ſo long as the crowns, or thoſe whoſe bottoms are moiſt. But whenever a crown is taken from the fruit, or the ſuckers from old plants, they ſhould be immediately divеſted of their bottom leaves, ſo high as to allow depth for their planting; ſo that they may be thoroughly dry and healed in every part, leſt when they receive heat and moiſture they ſhould periſh, which often happens when this method is not obſerved. If theſe ſuckers or crowns

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are taken off late in the autumn, or during the winter, or early in the ſpring, they ſhould be laid in a dry place in the ſtove, for a fortnight or three weeks before they are planted, but in the ſummer ſeaſon they will be fit for planting in a week at fartheſt.

As to the earth in which theſe ſhould be planted, if you have a rich good kitchen garden mould, not too heavy, ſo as to detain the moiſture too long, nor over light and ſandy, it will be very proper for them without any mixture: but where this is wanting, you ſhould procure ſome freſh earth from a good paſture, which ſhould be mixed with about a third part of rotten neats dung, or the dung of an old melon or cucumber bed. Theſe ſhould be mixed ſix or eight months at leaſt before they are uſed, but if it be a year it will be the better; and ſhould be often turned, that their parts may be better united, as alſo the clods well broken. This earth ſhould not be ſcreened very fine, for if you can only clear it of the great ſtones, it will be better for the plants than when it is made too fine. You ſhould always avoid mixing any ſand with the earth, unleſs it be extremely ſtiff, and then it will be neceſſary to have it mixed at leaſt ſix months or a year before it is uſed; and it muſt be frequently turned, that the ſand may be incorporated in the earth ſo as to divide its parts: but you ſhould not put more than a fixth part of ſand, for too much ſand is very injurious to theſe plants.

In the ſummer ſeaſon, when the weather is warm, theſe plants muſt be frequently watered, but you ſhould not give them large quantities at a time: you muſt alſo be very careful that the moiſture is not detained in the pots by the holes being ſtopped, for that will ſoon deſtroy the plants. If the ſeaſon is warm, they ſhould be watered twice a week, but in a cool ſeaſon once a week is often enough; and during the ſummer ſeaſon you ſhould once a week water them gently all over their leaves, which will waſh the filth from off them, and thereby greatly promote the growth of the plants.

There are ſome perſons who frequently ſhift theſe plants from pot to pot, but this is by no means to be practiſed by thoſe who propoſe to have large well-flavoured fruit; for unleſs the pots be filled with the roots, by the time the plants begin to ſhew their fruit, they commonly produce ſmall fruit, which have generally large crowns on them, therefore the plants will not require to be new potted oftener than twice in a ſeaſon: the firſt time ſhould be about the end of April, when the ſuckers and crowns of the former year's fruit (which remained all the winter in thoſe pots in which they were firſt planted) ſhould be ſhifted into larger pots, that is, thoſe which were in halfpenny, or three-farthing pots, ſhould be put into penny, or at moſt three-halfpenny pots, according to the ſize of the plants; for you muſt be very careful not to over pot them, nothing being more prejudicial to theſe plants. The ſecond time for ſhifting of them is in the beginning of Auguſt, when you ſhould ſhift thoſe which are of a proper ſize for fruiting the following ſpring, into two-penny pots, which are full large enough for any of theſe plants. At each of theſe times of ſhifting the plants, the bark-bed ſhould be ſtirred up, and ſome new bark added, to raiſe the bed up to the height it was at firſt made; and when the pots are plunged again into the bark-bed, the plants ſhould be watered gently all over their leaves, to waſh off the filth, and to ſettle the earth to the roots of the plants. If the bark-bed be well ſtirred, and a quantity of good freſh bark added to the bed, at this latter ſhifting, it will be of great ſervice to the plants, for they may remain in the ſame tan until the beginning of November, or ſometimes later, according to the mildneſs of the ſeaſon, and will require but little fire before that time. During the winter ſeaſon, theſe plants will not require to be watered more than once a week, according as you find the earth in the pots too dry; nor ſhould you give them too much at each time, for it is much better to give them a little water often, than to over-water them.

You muſt obſerve never to ſhift thoſe plants which ſhew their fruit into other pots, for if they are removed after the fruit appears, it will ſtop the growth, and thereby cauſe the fruit to be ſmaller, and retard its ripening, ſo that many times it will be October or November before the fruit is ripe; therefore you ſhould be very careful to

keep the plants in a vigorous growing ſtate, from the firſt appearance of the fruit; for if they receive a check after this, the the fruit is generally ſmall and ill taſted.

When you have cut off the fruit from the plant whoſe kind you are deſirous to propagate, you ſhould trim the leaves and plunge the pots again into a moderate hot-bed, obſerving to refreſh them frequently with water, which will cauſe them to put out their ſuckers in plenty; ſo that a perſon may be ſoon ſupplied with plants enough, becauſe upon this depends its ſize and goodneſs; if he keeps the plants in health.

There is not any thing which can happen to theſe plants of a more dangerous nature, than to have them attacked by ſmall white inſects, which appear at firſt like a white mildew, but ſoon after have the appearance of lice: theſe attack both root and leaves at the ſame time, and if not deſtroyed will ſpread over a whole ſtove in a ſhort time, and in a few weeks ſtop the growth of the plants, by ſucking out the nutritious juice, ſo that the leaves will appear yellow and ſickly, and have a great number of yellow tranſparent ſpots all over them. Theſe inſects, after they are fully grown, appear like bugs, and adhere ſo cloſely to the leaves, as not to be eaſily waſhed off, and ſeem to have no local motion. They were originally brought from America upon the plants which were imported from thence, and probably they are the ſame inſects which have deſtroyed the ſugar canes in ſome of the Leeward Iſlands.

The ſtoves which are erected for preſerving of theſe plants are built in different ways, according to the fancy of the contriver. Some perſons build them with upright glaſſes in front, about four feet high, and ſloping glaſſes over theſe, which rife about ſix feet high, ſo that there is juſt height enough for a perſon to walk upright on the back ſide of the bark-bed. Others make but one ſlope of glaſſes, from the top of the ſtove down to the plate, which lies about ſix or eight inches above the bark-pit, in the front of the ſtove, ſo that in this ſtove there is no walk made in the front between the bark-pit and the glaſſes; but the inconveniency of watering the plants, as alſo of coming near thoſe plants which are placed in the front of the ſtove to clean them, has, in ſome meaſure, brought them into diſeſteem, ſo that few perſons now build them, though the expence is much leſs than the other kind of ſtoves. One of theſe ſtoves, about twenty-five feet long in the clear, with the pit for the tan reaching from end to end, and ſix feet and a half wide, will contain about an hundred plants; ſo that whoever is deſirous to have this fruit, may eaſily proportion their ſtove to the quantity of fruit they are willing to have.

But it will alſo be neceſſary to have a bark-pit under a deep frame, in order to raiſe the young plants in ſummer; for in this bed you ſhould plunge the ſuckers, when they are taken from the old plants, as alſo the crowns which come from the fruit, ſo that this frame will be as a nurſery to raiſe the young plants to ſupply the ſtove; but theſe plants ſhould not remain in theſe frames longer than till the beginning of November, unleſs the frame is built with brick-work with flues in it to warm the air, which are very uſeful, as nurt ſeries, to keep the young plants till they are of a proper ſize to produce fruit; and the air in this frame may be kept either warmer or cooler than the ſtove, according as the plants may require, ſo that the ſtove may be every autumn filled only with bearing plants, whereby a much greater quantity of fruit may be annually produced, than can be where young and old plants muſt be crowded into the ſame ſtove: but where there are no inconveniencies of this kind, the young plants, about the middle or latter end of October, muſt be removed into the ſtove, and being ſmall, may be crowded in among the larger plants; for as they will not grow much during the winter ſeaſon, ſo they may be placed very cloſe together. The end of March, where there is no nurſery for the young plants, they muſt be removed out into the hot-bed again, which ſhould be prepared a fortnight before, that the tan may have acquired a proper heat; but you ſhould be careful that the tan be not too hot, for that might ſcald the fibres of the plants if they are ſuddenly plunged therein. Therefore if you find the bark too hot, you ſhould not plunge the pots above two or three inches into the tan, letting them remain ſo until the heat of the

tan

tan is a little abated, when you ſhould plunge the pots down to their rim in the bed. If the nights ſhould continue cold after theſe plants are removed into the bed, you muſt carefully cover the glaſſes with mats, otherwiſe by coming out of a warm ſtove they may receive a ſudden check, which will greatly retard their growth, which muſt be carefully avoided; becauſe the ſooner the plants are ſet growing in the ſpring, the more time they will have to gain ſtrength, in order to produce large fruit the following ſeaſon.

You ſhould not plunge the pots too cloſe together in this frame, but allow them a proper diſtance, that the lower part of the plants may increaſe in bulk, for it is on this that the magnitude of the fruit depends; becauſe when the plants are placed too cloſe, they draw up very tall, but do not obtain ſtrength; ſo that when they are taken out of the bed, the leaves are not able to ſupport themſelves, but all the outward long leaves will fall down, leaving the ſmaller middle leaves naked, and this ſometimes will cauſe them to rot in the center. You muſt alſo obſerve, when the ſun is very warm, to raiſe the glaſſes of the hot-bed in the heat of the day with props, in order to let out the ſteam of the bed, and to admit freſh air; for one neglect of this kind, in a very hot day, may deſtroy all the plants, or at leaſt ſo ſcald them, that they will not get over it in many months. It will be alſo very proper, in extreme hot weather, to ſhade the glaſſes with mats, for the glaſſes lying ſo near to the leaves of the plants will occaſion a prodigious heat at ſuch times.

There are ſome perſons who regulate the heat of their ſtoves by thermometers in ſummer, but at that ſeaſon this is unneceſſary, for the outward air in hot weather is frequently greater than the ananas heat marked on the thermometers, ſo that the heat of the ſtoves at that ſeaſon will be much greater. The uſe of the thermometer is only in winter, during the time the fires are continued, by which it is eaſy to judge when to increaſe or diminiſh the fires; for at that ſeaſon the ſtoves ſhould not be kept to a greater warmth than five or ſix diviſions above ananas, nor ſuffered to be more than as many diviſions below it. When the plants are placed into the tan for the winter ſeaſon (which ſhould be done about the middle of October) the tan-bed ſhould be renewed, adding two thirds of new tan to one third of the old. If this be well mixed, and the new tan is good, the bed will maintain a proper degree of warmth till February, at which time it will be proper to ſtir up the bed, and add a load or two of new tan, ſo as to raiſe the bed as much as it ſunk ſince the autumn; this will give a freſh heat to the bed, and keep the plants growing, and, as the fruit will now begin to appear, it will be abſolutely neceſſary to keep the plants in a growing ſtate, otherwiſe the fruit will not be large; for if they receive any check at this time, it will greatly injure them.

In April it will be proper to ſtir up the tan again, and if the bed has ſunk ſince the laſt ſtirring, it will be proper to add ſome freſh tan to it; this will renew the warmth of the bed and forward the fruit. And if the tan-bed is conſtantly kept in a good temper, and a ſufficient quantity of air admitted every day to the plants, they will ſucceed much better than in a cool bed kept too cloſe.

Thoſe plants which ſhew their fruit early in February will ripen about June; ſome ſorts are at leaſt a month or five weeks longer in ripening than others, from the time of the appearance of the fruit: but the ſeaſon in which the fruit is in greateſt perfection, is from the beginning of June to the end of September; though in March, April, and October, this fruit may frequently be ſeen in pretty good perfection, but then the plants have been in perfect health, otherwiſe they are ſeldom well flavoured.

The method of judging when the the fruit is ripe, is by the ſmell, and from obſervation; for as the ſeveral ſorts differ from each other in the colour of their fruit, that will not be any direction when to cut them; for ſhould they remain ſo long as to become ſoft to the touch before they are cut, they become flat and dead, as they do alſo when they are cut long before they are eaten: therefore the ſureſt way to have this fruit in perfection, is to cut it the ſame day it is eaten: but it muſt be cut early in the morning, before the

ſun has heated the fruit, otherwiſe it will be hot, obſerving to cut the ſtalk as long to the fruit as poſſible, and lay it in a cool, but dry place, preſerving the ſtalk and crown unto it until it is eaten.

Mr. Speechly, gardener to the Duke of Portland, has lately introduced oak leaves into the ſtove inſtead of Bark.

"I preſume, ſays he, that the leaves of the oak abound with the ſame quality as the bark of the tree, therefore the ſooner they are raked up, after they fall from the trees, the better; as that quality will naturally decreaſe during the time they are expoſed to the weather.

"After being raked into heaps, they ſhould immediately be carried to ſome place near the hot-houſe, where they muſt lie to couch. I generally fence them round with ſome charcoal-hurdles, or any thing elſe, to keep them from being blown about the garden in windy weather. In this place we tread them well, and water them, in caſe they happen to have been brought in dry. We make the heap ſix or ſeven feet in thickneſs, covering it over with old matts, or any thing elſe, to prevent the upper leaves from being blown away. In a few days, the heap will come to a ſtrong heat. For the firſt year or two that I uſed theſe leaves, I did not continue them in the heap longer than ten days or a fortnight; but in this I diſcovered a conſiderable inconvenience, as they ſettled ſo much, when got into the hot-houſe, as ſoon to require a ſupply. Taught by experience, I now let them remain in the heap for five or ſix weeks, by which time they are properly prepared for the hot-houſe. In getting them into the pine-pits, if they appear dry, we water them again, treading them in layers exceedingly well, till the pits are quite full. We then cover the whole with tan to the thickneſs of two inches, and tread it well till the ſurface becomes ſmooth and even. On this we place the pine-pots in the manner they are to ſtand, beginning with the middle-row firſt, and filling up the ſpaces between the pots with tan. In like manner, we proceed to the next row, till the whole be finiſhed. And this operation is performed in the ſame manner as when tan only is uſed.

"After this, the leaves require no farther trouble the whole ſeaſon through: as they will retain a conſtant and regular heat for twelve months without either ſtirring or turning; and if I may form a judgment from their appearance when taken out, (being always entire and perfect) it is probable they would continue their heat through a ſecond year: but as an annual ſupply of leaves here is eaſily obtained, ſuch a trial, with us, is hardly worth the trouble of making. However, as a ſaving in leaves may be an agreeable object in places where they are leſs plentiful, I was induced to make the following experiments: In 1777, one of the pine-pits was filled with one part of old and two parts of new leaves, well mixed together. And laſt year, (1778) one pit was filled with old and new leaves in equal quantities. In both theſe experiments, I had the ſatisfaction to find the pits, ſo filled, to retain a heat through each ſeaſon, equal to the other pits that were filled entirely with new leaves.

"Laſt year (1778) I alſo uſed a conſiderable quantity of the leaves after they were taken out of the hot-houſe in the early-made hot-beds, and found them to anſwer quite as well as freſh leaves.

"I muſt beg leave to obſerve, that when the leaves are intended to be uſed a ſecond time, it will be proper at the taking them out of the pits, to remove ſome few at the top, as alſo on each ſide, becauſe the leaves at the top and outſide of the pit, approach moſt to a ſtate of decay.

"After this, the pines will have no occaſion to be removed but at the ſtated times of their management, viz. at the ſhifting them in their pots, &c. when, at each time, a little freſh tan ſhould be added to make up the deficiency ariſing from the ſetting of the beds; but this will be inconſiderable, as the leaves do not ſettle much after their long couching. During the two firſt years of my practice, I did not uſe any tan, but plunged the pine-pots in the leaves, and juſt covered the ſurface of the beds, when finiſhed, with a little ſaw-duſt, to give it a neatneſs. This method was attended with one inconvenience: for by the caking of the leaves, they ſhrunk from the ſides of the

the pots, whereby they became expoſed to the air, and at the ſame time the heat of the beds was permitted to eſcape.

"Many powerful reaſons may be given why oak-leaves (for having an opportunity of collecting an immenſe quantity of them here, I have not tried any other kinds) are preferable to tanner's bark.

"Firſt, They always heat regularly; for during the whole time that I have uſed them, which is near ten years, I never once knew of their heating with violence; and this is ſo frequently the caſe with tan, that I affirm, and indeed it is well known to every perſon converſant in the management of the hot-houſe, that pines ſuffer more from this one circumſtance than from all other accidents put together, inſects excepted. When this accident happens near the time of their fruiting, the effect is ſoon ſeen in the fruit, which always comes ill-ſhaped and exceedingly ſmall. Sometimes there will be little or no fruit at all; therefore gardeners, who make uſe of tan only for their pines, ſhould be moſt particularly careful to avoid an over-heat at that critical ſeaſon—the time of ſhewing fruit.

"Secondly, the heat of oak-leaves is conſtant; whereas tanner's bark generally turns cold in a very ſhort time after its furious heat is gone off. This obliges the gardener to give the tan frequent turnings in order to promote its heating. Theſe frequent turnings, not to mention the expences, are attended with the worſt conſequences; for by the continual moving of the pots backwards and forwards, the pines are expoſed to the extremes of heat and cold, whereby their growth is conſiderably retarded; whereas, when leaves are uſed, the pines will have no occaſion to be moved but at the times of potting, &c.—The pines have one particular advantage in this undiſturbed ſituation; their roots grow thro' the bottoms of the pots and matt amongſt the leaves in a ſurpriſing manner.—From the vigour of the plants, when in this ſituation, it is highly probable that the leaves, even in this ſtate, afford them an uncommon and agreeable nouriſhment.

"Thirdly, there is a ſaving in point of expence, which is no inconſiderable object in places where tan cannot be had but from a great diſtance, as is the caſe here, the article of carriage amounting to ten ſhillings for each waggon-load. Indeed, this was the principal reaſon that firſt induced me to make trial of leaves.

"My laſt ground of preference is the conſideration that decayed leaves make good manure; whereas rotten tan is experimentally found to be of no value. I have often tried it both on ſand and clay, alſo on wet and dry lands, and never could diſcover, in any of my experiments, that it deſerved the name of a manure; whereas decayed leaves are the richeſt, and, of all others, the moſt ſuitable for a garden. But this muſt only be underſtood of leaves after they have undergone their fermentation, which reduces them to a true vegetable mould, in which we experimentally know that the food of plants is contained—but whether that food be oil, mucilage, or ſalt, or a combination of all three, I leave to philoſophers to determine. This black mould is, of all others, the moſt proper to mix with compoſt earth, and I uſe it in general for pines, and almoſt for all plants that grow in pots: For flowers, it is moſt excellent. The remainder of this vegetable mould may be employed in manuring the quarters of the kitchen-garden, for which purpoſe it is highly uſeful.

"Leaves mixt with dung make excellent hot-beds—and I find that beds, compounded in this manner, preſerve their heat much longer than when made entirely with dung."

He deſcribes the different ſpecies of inſects with accuracy; and the directions he gives for their deſtruction are plain to every underſtanding. It conſiſts in waſhing the pine-plants well with the following liquor:

"Take one pound of quickſilver; put it into a glazed veſſel, and pour upon it one gallon of boiling water, which let ſtand till it becomes cold; then pour off the water for uſe. Repeat this on the ſame quickſilver, (for it will retain its power) till a ſufficient number of gallons are provided to fill a veſſel intended for the purpoſe. One in the form of a trough, that will hold eight or ten gallons, is the moſt convenient,

venient, especially for the large-sized plants.

"Then to every gallon of this mercurial water add six ounces of soft green soap, dissolved in a portion of the prepared water. Let the mixture stand till it becomes about milk-warm, which is the degree of warmth it must be kept to during the time of dipping, which operation is performed in the following manner:

"The pine plants being now ready, let them be put into the mixture, in which they should remain, with every part covered, for the space of three minutes; then take them out, first letting the tops decline for the mixture to drain out of their centres. The vessel should be immediately filled with fresh plants, and those taken out set in the open air to dry, with their roots downwards; for by placing them in that position, the mixture will descend and penetrate to the very bottom of the leaves in the centre of the plant, whereby the insects which are concealed there will be totally destroyed.

"It will be proper to do this work in a fine day, and as soon in the forenoon as convenient, that the plants might have time to dry, which they will do in a few hours, and then they must undergo the same operation a second time.

"In the next dipping, one table spoonful of sweet oil should be added to every gallon of the mixture. If the oil and some green soap should be put together, and a little prepared boiling water poured thereon, the oil will most readily incorporate.

"The process of the second operation being exactly the same as the first, a repetition thereof is unnecessary.

"After the second dipping, a sponge should be used, to remove any unsightly matter left on the leaves of the plants. They should then be set to dry with their tops downwards, that the mixture may drain from every part; for it is necessary that every part of the plant should be quite dry before it is planted.

"For a twelvemonth after the destruction of the insects, I constantly keep a pound of quicksilver in a glazed vessel, at the bottom of the cistern which contained the water for the use of the hot-house. Whether the quicksilver impregnated the water in such a manner as to be of any real use, I do not pretend to say: however, this I can with truth affirm, that I never saw pine plants grow with greater vigour than those did at that time."

Dwarf PINE. Tree Germander.

Wild PINE APPLE. *See* PENGUIN.

PINK. *See* CARNATION.

PINT. A vessel or measure containing in quantity sixteen ounces; half a quart; the eighth part of a gallon.

PIP. This is a disorder peculiar to young fowls, and generally arises from the want of water. The natural moisture of the mouth in this case hardens upon the end of the tongue into a kind of scale, and this prevents their feeding.

The greatest care is required to observe in time which of them have the disease, for the remedy is easy.

Let some bay salt be melted in a little vinegar, and set ready in a saucer.—Then let the young creatures be taken up and the scale loosened, and then pulled off from the tongue with the fingers. Then wet the end of the tongue two or three times over with the vinegar and salt, and turn the chick loose where he cannot drink for an hour. This will prevent a return.

PIPE. A large vessel for wine, equal to two barrels; half a tun.

PIPE TREE, *(Syringa) See* LILAC.

Pudding PIPE TREE. *See* CASSIA.

PIPERIDGE *Bush. See* BARBERRY.

PISSING *of Blood*, in Horses. Great care should be taken to observe the quantity of urine made; if there be too much in proportion to the liquor drank, restringents should be made use of, such as the following balls:

Japon Earth, two ounces,
Mithridate,
Diascordium, each one ounce and a half, mix altogether in a pint and a half of forge water, and give it in a morning, repeating every third morning.

If on the other hand, urine is made in quantity, and seems made with difficulty,

Take Marshmallow Roots;
Liquorice Roots, each two ounces, boil in three pints of water to a quart. Dissolve in it two ounces of Nitre, and give for a dose night and morning.
Let a clyster be given, made of a strong

ſtrong decoction of marſhmallows and ſweet oil.

"This diſorder in cows (ſays a writer in the Farmer's Magazine) is often produced by a blow or a ſtrain, and in either caſe is dangerous; perhaps more ſo than if it proceeded from an inward diſorder, as a mortification is much to be feared; whereas an exalted ſtate of the urinous ſalts will ſometimes produce the diſorder, but a blow or ſtrain to produce it muſt not only do an external violence to the muſcles of the loins, (probably to the nerves themſelves) but alſo to the veſſels of the kidnies, and thoſe which go from the kidnies to the bladder; and I have ſeen the whole in a ſtate of mortification, and this from a ſtrain which has not been thought of ſufficient conſequence to require medicines;—but remember, that as your beaſt cannot tell how great the injury is, you are to apply immediate remedies.

Take away ſome blood. If the beaſt be coſtive, give the following emollient clyſter, immediately: Milk gruel, three pints; ſweet oil, half a pint. And afterwards the following anodyne clyſter, twice or thrice a day: Sheep's-head broth, three pints; liquid laudanum, one ounce.

"Of all remedies in diſeaſes of the bladder or kidnies, clyſters are the moſt to be depended on; of which I was informed by an ingenious phyſical friend, who told me that in the moſt violent fits of the gravel, retention of urine, &c. he chiefly depended on anodyne clyſters, which acted as a fomentation to the parts immediately concerned, and gave a more immediate relief than medicines taken by the mouth.

"If the diſorder proceed from a ſtrain or blow, the loins ſhould be bathed with Goulard's vegeto-mineral water, and then covered with cloths. The beaſt ſhould be kept up at houſe, and well ſupplied with warm gruel, or rather the following liquor:

Take two dozen of white poppy heads, ſeeds and all; liquorice, marſhmallow, and couch graſs roots, each half a pound; nitre, and gum arabic, each three ounces, camphor, one ounce and a half; boil in ſix gallons of water-gruel to four, and then add a pound of treacle. Give to the quantity of two gallons daily, a little warm.

"Different as the above preſcription may be to the common method purſued by Cowleeches, I can recommend it not only as rational, but ſucceſsful. Reſtringents are unadviſeable."

PISHAMIN, *or* PERSIMON, (Diospyrus) *See* DATE PLUM TREE.

PITCH TREE. The Fir Tree.

PLANE TREE, (*Platanus*) Of this tree there are only two ſpecies. 1. The true Eaſtern Plane-tree. This kind grows naturally in Aſia, where it becomes very large; the ſtem is tall, erect, and covered with a ſmooth bark, which annually falls off; it ſends out many ſide-branches, which are generally a little crooked at their joints; the bark of the young branches is of a dark brown, inclining to a purple colour; they are garniſhed with leaves placed alternate; their foot-ſtalks are an inch and a half long; the leaves are ſeven inches long & eight broad, deeply cut into five ſegments, and the two outer are ſlightly cut again into two more; theſe ſegments have many acute indentures on their borders, and have each a ſtrong mid-rib, with many lateral veins running to the ſides; the upper ſide of the leaves is of a deep green, and the under ſide pale. The flowers come out upon long foot-ſtalks or ropes hanging downward, each ſuſtaining five or ſix round balls of flowers; the upper, which are the largeſt, are more than four inches in circumference; theſe ſit very cloſe to the foot-ſtalks. The flowers are ſo ſmall as ſcarce to be diſtinguiſhed without glaſſes; they come out a little before the leaves, which is in the beginning of June; and in warm ſummers the ſeeds will ripen late in autumn, and if left upon the trees will remain till ſpring, when the balls fall to pieces, and the briſtly down, which ſurrounds the ſeeds, helps to tranſport them to a great diſtance with the wind.

2. *Occidental or Virginian Plane-tree.*

This ſort is naturally produced in moſt parts of North America; it grows to a large ſize, with a ſtraight ſtem of equal girt moſt part of the length; the bark is ſmooth, and annually falls off like that of the other; the branches extend wide on every ſide; the young ones have a browniſh bark, but on the old

old ones it is grey; the foot-ſtalks of the leaves are three inches long; the leaves are ſeven inches long, and ten broad; they are cut into three lobes or angles, and have ſeveral acute indentures on their borders, with three longitudinal midribs, and many ſtrong lateral veins. The leaves are of a light green on their upper ſide, and paler on their under. The flowers grow in round balls like the former, but are ſmaller. The leaves and flowers come out at the ſame time with the former, and the ſeeds ripen in autumn.

The flowers come out late in the ſpring, and are ſo ſmall as ſcarcely to be viſible to the naked eye. The buds of the leaves of the oriental ſort begin to ſwell about the fourteenth of April, and the leaves are generally out by the latter end of the ſame month.

Beſides the two ſpecies already deſcribed there are two varieties: 1. The Spaniſh Plane-tree; 2. The Maple-leaved Plane-tree.

The Spaniſh Plane-tree has larger leaves than either of the other ſorts; they are more divided than thoſe of the Occidental, but not ſo much as the Eaſtern. Some of the leaves are cut into five and others into three lobes; theſe are ſharply indented on the edges, and are of a light green; the foot-ſtalks are ſhort, and covered with a ſhort down. This is by ſome called the Middle Plane-tree, from its leaves being ſhaped between thoſe of the two other ſorts. It grows rather faſter than either of the other kinds.

The Maple-leaved Plane-tree differs from the two genuine ſpecies, in having its leaves not ſo deeply cut as the Eaſtern, nor lobed as the Weſtern kind. The foot-ſtalks of the leaves are much longer than thoſe of the above ſorts, and the upper ſurface of the leaves is rougher.

The Oriental and Spaniſh Plane-trees are propagated from ſeeds, when they can be procured; but whoever enjoys not this convenience, muſt have recourſe to layers. The ground proper for the ſeminary ſhould be moiſt and ſhady, well dug, and raked till the mould is fine; then, in the autumn, ſoon after the ſeeds are ripe, let them be ſcattered over this ground, and the ſeeds raked in, in the ſame manner as turnip-ſeeds. In the ſpring many of the young plants will come up, though you muſt not expect the general crop till the ſecond year; the ſpring after which they may be taken out of the ſeminary, and planted in the nurſery in rows one yard aſunder, and at one foot and a half diſtance in the rows. Here they may remain, with the uſual care of digging between the rows and keeping them clean, till they are of ſufficient ſize to plant out for good.

Where the ſeeds of theſe trees cannot be procured, layering muſt be the method of propagation. For this purpoſe a ſufficient number muſt be planted out for ſtools on a ſpot of earth double dug. After they have ſtood one year, they ſhould be cut down, in order to make them throw out young wood for layering. The autumn following theſe ſhould be laid in the ground, with a little nick in the joint; and by that time twelvemonths they will be trees of a yard high, with a good root, ready to be planted in the nurſery, where they may be managed as the ſeedlings; and as the ſtools will have ſhot up freſh young wood for a ſecond operation, this treatment may be continued *ad libitum*.

The Occidental Plane-tree is propagated by cuttings; which if they are taken from ſtrong young wood, and planted early in the autumn, in a moiſt good mould, will hardly fail of ſucceeding. They are generally planted thick, and then removed into the nurſery-ground, as the layers of the other ſort: But if a large piece of moiſt ground was ready, the cuttings might be placed at ſuch a diſtance as not to approach too cloſe before they were of a ſufficient ſize to plant out for good; and this would ſave the expence and trouble of a removal. The Oriental Plane-tree will grow from cuttings, but not ſo certainly as this; and whoever has not the convenience of proper ground for the cuttings of either, muſt have recourſe to layers with this tree alſo; which, indeed, is always the ſureſt and moſt effectual method.

Plane-trees delight in a moiſt ſituation, eſpecially the Occidental ſort; where the land is inclined to be dry, and Plane-trees are deſired, the other kinds are to be preferred. But in moiſt places, by the ſides of rivulets, ponds, &c. the Occidental makes ſuch ſurpriſing

prising progress as induces me to think that it might be ranked amongst the Aquatics, without any impropriety.

PLANTAIN, (*Plantago.*) There are two kinds of this plant, the narrow and broad-leaved, both common in fields and by road-sides. The leaves are lightly astringent, and the seeds said to be so; and hence they stand recommended in haemorrhages, and other cases where medicines of this kind are proper. The leaves bruised a little, are the usual application of the common people to slight flesh wounds.—The Edinburgh college directs an extract to be made from the leaves.

PLANTAIN TREE. *See* BANANA.

PLANTAIN SHOT. Indian Cane. *See* CANE.

PLANTATIONS. Plantations of trees, &c. greatly embellish and improve estates, as well as ornament the adjacent country; and those formed into woods for timber-trees, prove not only very beneficial to the owners, but may be said to be a public convenience to the country around, to have the opportunity of purchasing wood in the neighbourhood, for the various purposes of buildings, fencings, making all sorts of husbandry implements, as carts, waggons, ploughs, &c. and for innumerable other uses; also for furnishing fuel, a very essential article.

In former ages, this island abounded in natural plantations or forests, which spread themselves over the surface of the country, to a very considerable extent, and were composed of various sorts of lofty trees of prodigious magnitude, all blended promiscuously together, and all of spontaneous growth. Those vast forests were never planted by any human hand, such only have been employed for ages in cutting them down; for in many places there were such a profusion of useless wood, that large tracts were obliged to be cleared by degrees, in order to cultivate the ground for other purposes; which, together with the necessary demands for the timber from time to time for buildings, &c. and that owners of estates, reaping considerable advantage from the sale of their timber, continued by degrees, one generation after another, grubbing up their timber without measure; and few ever planted any in lieu of what they cut down; so that in many parts there is almost a general demolition of woodland, and many considerable estates have scarcely any timber of value left standing, whence comes the present scarcity in many parts of the kingdom.

Every possessor of estates, either of large or moderate extent, will reap great pleasure and advantage in dedicating some share of his land to plantations; for in estates of whatsoever extent, they give grandeur and ornament to the premises, as well as an air of fertility and riches; and those large plantations designed for woods, will, after the first eight or ten years, bring in great profit by a gradual thinning of the underwood, besides leaving a sufficiency of standards to attain full growth: in the mean time the plantations in general will contribute exceedingly to the beauty of the estate; for how delightfully it is for travellers to behold the noble plantations in groves, thickets, clumps, &c. variously disposed in parks, and on the boundaries of spacious lawns, and the like places, formed of a great variety of beautiful trees and shrubs, and to see grand avenues of lofty growth, leading to or from a stately mansion, or some main road, or some adjacent town; and in the out-grounds to observe the Plantations of woodlands, &c. ranging along the sides of hills, plains, and other grounds occasionally; but in estates, how fertile soever the soil, yet it appears naked and barren without a proper share of plantations; on the other hand, when estates are beautifully diversified with plantations, the whole may be said to form a sort of pleasure-garden; especially as in the homeward plantations we may have commodious walks of gravel and sand, both private, shady, and sheltered walks, occasionally disposed in many winding turns in the serpentine way, bordered with hardy shrubs and flowers, which will afford most agreeable walking at almost any season of the year, as in summer they afford a screen from the vehement heat of the sun, and at other times shelter from boisterous winds, and cold piercing blasts; there may be also here and there recesses or places of retirement, leading by private turnings from the principal walks, with gladings or openings of grass-ground in the midst of

the moſt extended parts of the plantations.

No land-holder, therefore, let the extent be almoſt ever ſo moderate or conſiderable, but ought to appropriate a proportionable ſhare to commodious plantations as ſoon as poſſible, either for ornament or emolument, or both, where the extent will admit, as there is hardly any eſtate that does not afford ſoil and ſituation proper for the cultivation of all our hardy trees, &c. and in many places often furniſh ſoils improper for graſs and corn, yet adapted to the growth of many ſorts of trees, which would form good plantations, and ſecure to the planter and his poſterity a future pleaſure and revenue of conſiderable importance.

In ſhort, there is hardly any ſoil ſo barren and untractable but what will rear a growth of trees and ſhrubs of ſome ſpecies or other, both for ornament and advantage; and there is ſcarcely any kind of tree ſo bad but may be raiſed to one or other of thoſe purpoſes: any very poor ground, or ſuch that lies waſte, or at a great diſtance, cannot be better improved than in plantations; even although a tract of land ſhould be ſo poor as to rear nothing but a crop of aſpen trees, alder, and willows, yet the profits even of theſe productions will greatly exceed what many may think.

So that there is a great number of examples to encourage, and warrant ſucceſs in plantations, to reward not only with the pleaſure of ornamenting our lands, and that of beholding their growth, but alſo with profit ſufficient to compenſate amply for the tract of land occupied, and labour in planting.

But to many perſons, the neceſſary expence attending the making a plantation, and knowing that they muſt wait ſeveral years before the trees have made any conſiderable progreſs, or can reap any advantage therefrom, often proves an obſtacle in attempting the proſecution of that buſineſs; but as to the expence of planting, if you raiſe the plants in your own grounds, it will not prove near ſo great as many might imagine, eſpecially as a ſmall ſpot of ſeminary or nurſery-ground will raiſe plants enough in three or four years to plant a great many acres of land, both ornamental and woodland; and by the latter, the expence of raiſing and planting them, together with the loſs of time in waiting a few years till the plants attain ſome growth, will be compenſated by the firſt fall or thinning of the underwood, in eight or ten years after planting; and the ſtools or roots remaining ſhoot up again, and afford a lopping every eight or ten years, excluſive of the due portion of ſtandards left at proper diſtances, to attain full growth for timber, as aforeſaid.

One particular precaution in making plantations, is the judicious choice of ſuch trees as are the beſt adapted to the nature of particular ſoils, which may vary exceedingly in eſtates of great extent; however, ſuch trees as we find daily growing by road-ſides, hedge-rows, and in any adjacent grounds, are rough ſketches of what the land will produce.

As to the ſorts of trees and ſhrubs proper for plantations in general, there is a vaſt variety, both of the deciduous and ever-green tribes, that will proſper in the open ground in any common ſoil.

It is of importance, in making any conſiderable plantation, to chuſe principally young plants, of from about two or three to five or ten feet ſtature, which always prove more ſucceſsful than older trees; for although ſome perſons, being in haſte to have plantations as forward as poſſible in a few years, tranſplant tall trees, perhaps twelve or fifteen feet high or more, particularly for ornamental plantations, yet younger growth always take root ſooner, and more firmly eſtabliſh themſelves, ſo as to form conſiderably the fineſt plantations at laſt, and be of longeſt duration; for although large trees of from ten to twenty feet height, eſpecially of the deciduous kind, may with care be tranſplanted, ſo as to grow and probably thrive tolerably for ſome years, yet trees more than twelve or fifteen feet high often fail, by not rooting firmly like young plants, and after ſome years ſtanding, have hardly made any ſhoots, and at laſt gradually dwindle and periſh; therefore large trees ſhould never be employed for plantations only on particular occaſions, where a few may be neceſſary to form

form an immediate ſhade or blind, &c. in ſome particular place; but for general work, be perſuaded to employ chiefly young plants, either of your own raiſing, or purchaſed from the nurſeries. And for timber plantations in particular, ſuch plants ſhould be choſen as are only from about two or three, to five or ſix feet in height.

All the different ſorts of trees and ſhrubs, proper both for ornamental and timber plantations, may be had at all the public nurſeries moderately reaſonable; though perſons, accommodated with ſcope of ground, may eaſily raiſe all the ſorts for their own private uſe: A ſmall nurſery will raiſe trees and ſhrubs enough to plant many acres of land.

Obſerve, that where plantations are intended principally for ornament, as great a variety as poſſible of the different ſorts of hardy trees and ſhrubs ſhould be employed, to afford the greater ſource of entertainment; and ſhould conſiſt both of lofty and middling trees, down to the humbleſt ſhrub; diſpoſing the deciduous and evergreen plants principally in ſeparate compartments; ſometimes arranging the tree-kinds by themſelves; ſome in running irregular plantations, towards the boundaries of ſpacious lawns, parks, paddocks, &c. others in avenues, groves, thickets, and clumps, as aforeſaid, variouſly diſpoſed in different parts; and ſometimes arranging the trees and ſhrubs together, in forming ſhrubberies, wilderneſs, ſhady walks, and wood-works; placing the taller growth backward, and the lower in front; bordering the whole with the moſt beautiful flowering ſhrubs, and ſhowy ever-greens, eſpecially next the principal walks and lawns; obſerving to vary the form of all the ſeveral compartments, ſometimes by bold ſweeps and curves outward and inward, of different dimenſions, other parts in long eaſy bends, irregular projections and breaks, ſo as to diverſify the ſcene in imitation of a natural plantation. Allow all the ſorts proper diſtances, which may be from five or ten to fifteen or twenty feet; for example, the tall trees deſigned for continued plantations may be from ten to fifteen or twenty feet, varying the diſtance in different parts, according as light and ſhade, &c. may be proper; and thoſe in groves may, if open groves, be at fifteen or twenty feet diſtance, and cloſe groves ten or twelve; for thickets, five or ſix feet, or cloſer in particular places, where a very dark ſhade, or thick coverture of wood is required; and in clumps of trees, may allow from five or ten to twenty feet between the trees in each clump, varying the diſtance occaſionally, as alſo the ſorts and numbers of trees in each, from two or three to ten or more: likewiſe the form of the clumps; ſome may be triangular, others quadrangular, pentangular, &c. and ſome in curves, others in ſtraight lines, to cauſe the greater variety. And as to the ſhrubbery clumps, and wilderneſs compartments, where the trees and ſhrubs are employed promiſcuouſly together, they may be planted from five to ten feet diſtant; the taller growth being placed backward eight or ten feet aſunder, placing the lower plants gradually forward according to their gradation of ſtature, to the loweſt in front, as above obſerved, at four or five feet diſtance: and if the trees and ſhrubs of the plantations in general are diſpoſed ſomewhat in the quincunx way, they will appear to the greater advantage.

But when deſigned to form large plantations into woods, &c. compoſed principally of foreſt and timber-trees for profit, particular ſorts muſt be choſen, conſiſting both of deciduous and ever-green trees. Of the deciduous kinds chuſing the oak, elm, aſh, beech, cheſnut, hornbeam, birch, alder, maple, ſycamore, plane-tree, poplar, lime-tree, walnut-tree, wild cherry-tree, mountain-aſh, larch-tree, willow-tree, hazel-tree, &c. and of the ever-greens, the pine-trees, firs, cedar of Lebanon, holly-tree, bay-tree, laurel-tree, yew-tree, ever-green oak, box tree, and ſome others. The particular deſcription and culture of all which ſorts, deciduous and ever-greens, are exhibited in their proper genera. They are all hardy, and will grow in almoſt any common ſoil, rich or poor, and moſtly alſo in dry or moiſt ground, high or low; allotting, however, particular ſorts to very low marſhy ſoils, ſuch as the willow, ſallow, and oſier, poplar, alder, and other aquatics, which will proſper in places that are in a manner

covered with water, and are the moſt proper ſorts for the embelliſhing and improvement of ſuch grounds: all the other ſorts will ſucceed in any other more upland places out of water; obſerving, with reſpect to diſpoſition, the deciduous and ever-greens ſhould generally be ſeparate, as obſerved for the ornamental plantations. But the trees of the ſame tribe may ſometimes be intermixed, and ſometimes different ſorts in ſeparate diviſions or quarters, as oaks in one, elms in another, &c. remarking likewiſe in timber plantations, that all the trees ſhould be planted pretty cloſe together, i. e. not more than three or four feet diſtance, in order that they may mutually draw each other up tall, more expeditiouſly, and to allow for a gradual thinning, as hereafter directed.

In forming woods, however, or plantations of timber-trees, the following hints in reſpect to planting them are proper to be obſerved.

Let it therefore be remarked, that there are two methods practiſed in forming plantations of woodlands; one is by raiſing the trees from ſeed at once on the ground where the plantation is intended to be, eſpecially of the deciduous kind, and is effected by ſowing the ſeed in drills, a yard aſunder, and the plants always to remain where raiſed, thinning them gradually: the other method is by previouſly raiſing the plants in a nurſery, till two or three feet high, then tranſplanting them into places allotted them, in rows of the above diſtance, to allow alſo for gradually thinning.

Either of theſe two methods may be practiſed, as ſhall ſeem moſt convenient to the owner; but the former, namely, raiſing the plants where they are to remain, although it may be more expeditious, and at once get rid of the trouble of tranſplantation, yet they will require greater attendance for a few years, till the plants have ſhot up out of the way of weeds; but on the other hand, the trees always remaining where raiſed, not diſturbed by removal, probably may make the greater progreſs. The latter method, however, of raiſing the trees firſt in a nurſery, is rather the moſt commonly practiſed, as being thought the leaſt troubleſome and expenſive, with regard to the attendance at firſt of the young growth. However, every one is at liberty to make the experiment as it ſuits his convenience.

The preparation of the ground for the final reception of the ſeed or plants of theſe plantations, is by deep ploughing and harrowing, upon ſuch ground where the plough can be employed; where this, however, or any other tillage, is not practicable, we muſt uſe only young plants from the nurſery, making holes, &c. at proper diſtances, for the reception of each plant: where, however, the ground can be tilled, it will prove very advantageous, performing it previouſly a year at leaſt before; ſowing it with a crop of turneps, or the like: when theſe come off, well plough and harrow the ground again, for the reception either of the ſeed or plants the enſuing ſeaſon.

The moſt proper ſeaſon to perform this planting, either by ſeed or plants, is any time in dry mild weather, from October or November till February, though November and February are rather the moſt eligible for moſt kinds of hardy tree ſeeds: however, where large tracts are to be planted, both methods muſt be purſued all winter, at every favourable opportunity.

If ſeed is intended, you muſt be well provided with ſeeds of the ſeveral deciduous trees in particular, which may be obtained at all the nurſeries and eminent ſeed-ſhops; then, for its reception, draw furrows or drills about two or three inches deep, and three or four feet aſunder, ſcatter the ſeed along the middle of the drills, and cover the earth evenly over them, the depth of the drills or furrows, and place ſcarecrows and traps to guard againſt the inſults of birds and vermin.

But if deſigned to form the plantation with young plants, previouſly raiſed in beds in the nurſery by the common method, let the following practice be obſerved: Chuſe always young plants, only from two to three or five or ſix feet high; and if very large plantations are intended, you may, to ſave time and trouble, take the plants immediately from the ſeed-bed, when one or two feet high, without giving them any previous tranſplantation in the nurſery; though where the plantations are but moderate, it is moſt eligible

eligible to plant them out previouſly in nurſery-rows, to have two or three years growth: but for remarkable large plantations, this would be a very great trouble and expence. Being, however, furniſhed with young plants, they are to be planted in rows, three or four feet aſunder, as directed for the ſeed, and one or two feet apart in the lines: they may be planted either by opening ſmall apertures or holes with the ſpade for each plant; or, if very ſmall plants, it is ſometimes performed by making only a ſlit or crevice with the ſpade for each plant; and ſome open ſmall trenches the whole length, then one inſerts the plants whilſt another trims in the earth about their roots: ſome again, in very large tracts, where the ſituation admits of good ploughing and harrowing to divide and break the earth into ſmall particles, open furrows with a plough, two perſons being employed in depoſiting the trees in the furrows, whilſt the plough following immediately with another furrow, covers the roots of the plants with the earth thereof.

The ground where the above plantations are made ſhould be previouſly fenced all round with a deep ditch, &c. to guard againſt the encroachments of cattle.

Whilſt theſe plantations are young, they muſt have ſome attendance to deſtroy weeds, which may be expeditiouſly executed by hoeing between the rows in dry weather, particularly by horſe-hoeing; and this care will be needful for two or three years, eſpecially the ſeedling plantations, till the trees are advanced out of the reach of weeds; after which no farther trouble will be required until the trees are ready for the firſt fall or thinning, for poles, faggots, &c.

In eight or ten years growth, they will be of a proper ſize to begin the firſt fall by a moderate thinning, which will ſerve for poles and faggot-wood, to pay towards the expence of planting, &c. but begin lopping only part of the plantation the firſt year; thinning out the weakeſt and moſt unpromiſing growth firſt; leaving a ſufficiency of the moſt vigorous plants pretty cloſe, to grow up for larger purpoſes; the year following begin thinning another part, and ſo continue an annual thinning-fall till got through the whole plantation; cutting each fall down near the ground, leaving the ſtools to ſhoot out again, eſpecially of the deciduous kinds, and by that time you have made the laſt fall, the firſt will have ſhot up, and ready to be cut again; ſo the returns of fallings may be contrived to be every ſix, ſeven, eight, or ten years, or more, according to the uſes the poles or wood are wanted for; and if larger poles, &c. are wanted, the fall may be only once in fourteen, eighteen, or twenty years, ſtill, at every fall, being careful always to leave enough of the moſt thriving plants for final ſtandards; leaving them pretty cloſe at firſt, that they may mutually draw each other up in height; but may be thinned every ſucceeding fall as they encreaſe in bulk, and meet, ſo as to leave a ſufficient quantity of the principal trees at proper diſtances to grow up to timber, which, in their turn, as they become fit for the purpoſes intended, may alſo be felled according as there may be a demand for them to the moſt advantage; having young ones from the ſtools coming up in proper ſucceſſion as ſubſtitutes, ſo as the ground may be always occupied.

PLANTING. Planting is the art of inſerting plants, ſeeds, and roots, in the earth, for the purpoſe of vegetation.

There are various methods of planting in practice for different ſorts of plants, ſeeds, and roots; ſuch as hole planting, trench planting, trenching-in planting, ſlit or crevice planting, holeing-in planting, drill planting, bedding-in planting, furrow planting, dibble planting, planting with balls of earth about the root, planting in pots, &c. all of which methods of planting are occaſionally uſed by different practitioners in the ſeveral branches of gardening, according as the ſeveral methods ſhall ſeem moſt eligible for different or particular ſorts of plants.

1. *Hole-Planting.*—This is the principal method practiſed in the final planting of all ſorts of trees and ſhrubs in the full ground, by opening with a ſpade round holes in the ground, at certain diſtances, one for the reception of each plant. Each hole ſhould be digged capacious enough to admit all the roots of the tree or ſhrub freely every

every way to their full ſpread, without touching the ſides of the hole, and about one ſpade deep, or a little more or leſs, or according to the ſize of the roots, ſo as, when planted, the uppermoſt ones may be only about three inches below the common ſurface, or about as low as they were before in the ground, which is diſcoverable by examining the bottom of the ſtem of the tree; though in very moiſt ſoils, where the water is apt to ſtand, the holes ſhould rather be ſhallow, ſo as the uppermoſt roots may ſtand full as high as the general level, or higher if it ſhall ſeem neceſſary, raiſing the ground about them, eſpecially in winter planting: let the holes, however, be of a proper width and depth, according to the above rules, looſening the bottom well; and if too deep, it is eaſily remedied in the time of planting, by ſhaking up the tree as you ſhall ſee occaſion; obſerving in digging out each hole, to lay the earth in a heap cloſe to the edge, in order to be ready to fill in again: the holes being ready, then, having trimmed the roots, &c. of the trees, place one tree in the middle of the hole, making all its roots ſpread equally around, a perſon holding the plant erect by the ſtem, whilſt another with his ſpade caſts in the earth about the roots, taking particular care to break all large clods, and trim in ſome of the fineſt mould firſt all round about the roots in general, ſhaking the tree occaſionally, to cauſe the fine ſoil to fall in cloſe among all the ſmall roots and fibres; at the ſame time, if the tree ſtands too deep, ſhake it up gently to the proper height, and having filled in the earth to the top of the hole, tread it gently all round, firſt round the outſide to ſettle the earth cloſe to the extreme roots, continuing the treading gradually towards the ſtem, to which tread the mould moderately firm, but no where too hard, only juſt to ſettle the earth, and ſteady the plant in an upright poſition: then pare in all the remaining earth evenly round the tree, to the width of the hole, raiſing it ſomewhat above the general level of the ground, to allow for ſettling, giving it alſo a gentle tread, and finiſh it off a little hollow at top, baſon-like, the better to receive and retain the moiſture from rains, and occaſional waterings in ſpring and ſummer, particularly to the choicer kinds of trees and ſhrubs.

After performing this planting, if in winter, or late in ſpring, it may be of advantage to the choicer kinds of trees and ſhrubs to mulch them, i. e. to lay ſome long mulch at top of all the earth, both to keep out the winter's froſt, and prevent the drying winds and drought of ſpring and ſummer from penetrating to the roots before the trees are well rooted in their new quarters. But ſome, inſtead of mulch, uſe graſs turfs, turned topſy-turvy, eſpecially when planting upon any graſs ground, or any out-plantations where turfs of graſs can be obtained; or in orchards, where the ground is graſs; in which caſe it may be proper to bank ſome turfs round the ſides and top of each hole, particularly for large trees, which will ſteady them more effectually, as well as preſerve the moiſture, if much dry weather ſhould happen the ſucceeding ſummer.

The above work, however, of mulching or turfing new-planted trees, is not abſolutely neceſſary to our common hardy kinds of fruit-trees, foreſt-trees, and ſhrubs; though it may prove beneficial to all ſorts, but more particularly to the more tender kinds of wall fruit-trees, and more delicate ſorts of flowering-ſhrubs, choice ever-greens, and ſome kinds of herbaceous perennials.

2. *Trench Planting.*—This method is ſometimes practiſed in the nurſery-way, in putting out ſeedling and other ſmall trees and ſhrubs in rows; is alſo uſed for planting box edgings; ſometimes likewiſe for planting ſmall hedge-ſets, &c. and always in planting *Aſparagus*, and is performed by opening a long narrow trench with a ſpade, making one ſide upright, ſo place the plants againſt the upright ſide, and turn the earth in upon their roots.

3. *Trenching-in Planting.*]——This is alſo ſometimes practiſed in light pliable-working ground, for planting young trees in the nurſery-way, and ſometimes in planting hedge-ſets, &c. and is performed by digging along by a line, about one ſpade wide, and planting as you go on. The method is this: a line is ſet, then having the plants ready, and with your ſpade beginning

ginning at one end, and ſtanding ſideways to the line, throw out a ſpit of earth, which forming a ſmall aperture, another perſon being ready with the plants, he directly depoſits one in the opening, whilſt the digger proceeds with the digging one ſpade wide, covers the roots of the plants with the earth of the next ſpit; and another aperture being thereby alſo formed, place therein another plant, the digger ſtill proceeding, covers its roots, as before, with the next ſpit of earth, and ſo on to the end of the row; placing them at about a foot, or fifteen or eighteen inches aſunder, according to the ſize of the plants; obſerving, when planting larger trees with more ſpreading roots, by this method, that inſtead of digging the trench only one ſpade wide, two may probably be requiſite for the proper reception of the roots; likewiſe in forming the opening for each plant, make it capacious enough to receive the roots freely, digging the earth over them as above. After having planted one row, either ſmall or large plants, tread the earth evenly along to ſettle it to the roots, and ſteady the plants all equally upright.

4. *Slit Planting.*]—This method is performed by making ſlits or crevices with a ſpade in the ground, at particular diſtances, for the reception of ſmall trees and ſhrub plants. A ſlit being made for each plant, which are inſerted as you go on; and is practiſed ſometimes in the nurſery-way, &c. in putting out rows of ſmall plants, ſuckers, &c. at from about a foot to eighteen inches or two feet high, and that have but ſmall roots; it is alſo ſometimes practiſed for final planting in out-grounds, where very large tracts of foreſt-trees are intended, and that they are to be planted out at the above ſizes, and by the moſt expeditious and cheapeſt method of planting; the following is the method.

A line is ſet, or a mark made accordingly; then having a quantity of plants ready, for they muſt be planted as you proceed in making the ſlits, a man therefore having a good clean ſpade, he ſtrikes it into the ground with its back cloſe to the line or mark, forms a crevice, taking it out again directly, ſo as to leave the ſlit open, gives another ſtroke at right angles with the firſt, then the perſon with the plants inſerts one immediately into the ſecond-made crevice, bringing it up cloſe to the firſt, and directly preſs the earth cloſe to the plant with the foot; proceeding in the ſame manner to inſert another plant; and ſo on till all is finiſhed, which is a very expeditious way of putting out ſmall plants, for any conſiderable plantation.——A man and a boy by this method will plant ten or fifteen hundred, or more in a day.

5. *Hoeing-in Planting.*]——This is ſometimes uſed in the nurſery-way in light looſe ground, alſo ſometimes in planting potatoes, &c. in pliable ſoils.

The ground being previouſly digged or trenched, and a line placed, they proceed thus: a perſon with his ſpade takes out a ſmall ſpit of earth, to form a little aperture, in which another perſon directly depoſits a plant, &c. the digger at the ſame time taking another ſpit at a little diſtance, turns the earth thereof into the firſt hole over the roots, placing directly another plant in this ſecond opening, the digger covers it with the earth of a third, and ſo on to the end of the row.

6. *Drill Planting.*]—This is by drawing drills with an hoe from two to four or five inches deep, for the reception of ſeeds and roots, and is a commodious method of planting many ſorts of large ſeeds, ſuch as walnuts, cheſnuts, and the like; ſometimes alſo broad beans, but always for kidney-beans, and peas: likewiſe for planting many ſorts of bulbous roots, when to be depoſited in beds by themſelves.

The drills for all which purpoſes ſhould be drawn with a hoe, two or three inches deep; though for large kinds of bulbous roots, four or five inches depth will be requiſite, covering in the ſeeds and roots with the earth, always the depth of the drills.

7. *Bedding in Planting.*]——This is frequently practiſed for planting the choicer kinds of flowering bulbs, ſuch as *Hyacinths*, &c. alſo for larger ſeeds of trees, as acorns, large nuts, and other larger kinds of ſeeds, ſtones, and kernels, and is performed by drawing the earth from off the tops of the beds ſome inches depth, then planting the ſeeds or roots, and covering them over with the earth, drawn off for that purpoſe; after the following method:

The

The ground muſt be previouſly digged or trenched, raked, and formed into beds three or four feet wide, with alleys between bed and bed; then with a rake or ſpade trim the earth evenly from off the top of the bed into the alleys, from three to four or five inches deep for bulbous roots, and for ſeeds, one or two, according to what they are, and their ſize; then, if for bulbous roots, draw lines along the ſurface of the bed, nine inches diſtance, place the roots bottom downward, along the lines, ſix or eight inches apart, but, if ſeeds, they may be ſcattered promiſcuouſly; and having thus planted one bed, then with the ſpade, let the earth that was drawn off into the alley, be ſpread evenly upon the bed again over the roots or ſeed, &c. being careful to cover all equally the above depth, and to rake the ſurface ſmooth.

This method is much in practice among floriſts for the choicer ſorts of bulbous flowers.

The nurſerymen alſo practiſe this method in planting many of their larger ſeeds, nuts, &c.

8. *Furrow Planting.*]——This is by drawing furrows with a plough, and depoſiting ſets or plants in the furrow, covering them in alſo with the plough, and is ſometimes practiſed for planting potatoe-ſets in fields, and has been practiſed in planting young trees for large tracts of foreſt-tree plantations, where the cheapeſt and moſt expeditious method is required; but this method can be practiſed only in light pliable ground, and is performed thus: A furrow being drawn, one or two perſons are employed in placing the ſets or plants in the furrow, whilſt the plough following immediately with another furrow, turns the earth thereof in upon the roots of the plants.

9. *Dibble Planting.*]——This is the moſt commodious method for planting moſt ſorts of fibrous-rooted ſeedling plants, particularly all the herbaceous tribe; alſo for planting ſlips, off-ſets, and cuttings, both of herbaceous and ſhrubby kinds; likewiſe for ſome kinds of ſeeds and roots, ſuch as broad-beans, potatoe-ſets, Jeruſalem artichokes, and horſe-radiſh-ſets, with numerous ſorts of bulbous roots, &c. and is expeditiouſly performed with a dibble or ſetting-ſtick, therewith making a narrow hole in the earth for each plant, inſerting them in each hole, always as you go on; obſerving the following hints:

Having a dibble, or ſetting-ſtick, it is uſed by thruſting it into the earth in a perpendicular deſcent, in depth as the particular plants, &c. may require; directly inſerting the plant, ſeed, or ſet, according as each hole is made, cloſing the hole immediately by a ſtroke of the dibble. So proceed dibbling the holes, and planting as you go on, at particular diſtances and depths, according to the nature of the plants, &c. obſerving, in ſetting any kind of plants, ſlips, cuttings, and the like, having long ſhanks or ſtems, it is proper to make holes a proper depth, to admit them ſome conſiderable way in the ground; for example, cabbage-plants, ſavoys, &c. ſhould be planted down to their leaves; ſlips and cuttings ſhould be inſerted two parts of three, at leaſt, in the ground; being particularly careful, in dibbling-in all ſorts of plants, to cloſe the holes well in every part about the roots, by ſtriking the dibble ſlantways into the ground, ſo as to ſtrike the mould firſt firmly up to the root and fibres, at the ſame time bringing it cloſe to the ſtem; for in dibble planting, many only ſtrike the earth about the neck of the plant, and the lower part of the hole is often left hollow about the roots; but by ſtriking the dibble firſt at the root part, you fix the plant effectually, then a ſtroke of the dibble at the top of the ground finiſhes, by cloſing up every part of the aperture. In this manner continue planting and finiſhing each hole as you go on, perfectly cloſe, that neither the ſun, air, nor penetrating winds, can enter, this being of much importance, but often diſregarded, as we may often ſee the holes that are neceſſarily made in fixing the plants left open, though each hole at the inſertion of its plant, at one ſtroke of the dibble, may be cloſed with the utmoſt facility.

10. *Planting with Balls of Earth about the Roots.*]——This is the removing a plant with a large ball of earth about its roots, ſo as the plant by having its roots firmly attached to the ſurrounding ball of earth, it ſtill, during the operation, continues its growing ſtate without receiving any or but very little check

check from its removal; and is often practiſed more particularly to the more delicate and choicer kinds of exotics, both trees, ſhrubs, and herbaceous plants: likewiſe when intended to remove any ſort of tree or plant out of the proper planting ſeaſon, as very late in the ſpring, or in ſummer, it is eligible to tranſplant it with a good ball of earth, to preſerve it more certainly in a ſtate of growth. Obſerving, ſome trees and ſhrubs are more difficult to remove with a ball than moſt kinds of herbaceous fibrous-rooted plants, tho' many of the tree and ſhrub kinds, having very fibrey roots, they will alſo readily riſe with good balls.

But when trees or ſhrubs, with balls to their roots, are intended to be ſent to any conſiderable diſtance, they ſhould be placed in oſier baſkets, in order to preſerve the coheſion of the ball, having a baſket for each tree.—In planting them, if they cannot be readily moved out of the baſkets without diſturbing the ball of earth, plant baſket and all; cut it here and there in the ſides, and throw ſome fine mould cloſe all round ſo as to join with that of the ball, and give a watering to ſettle it more effectually cloſe; the roots and fibres will readily make their way through the ſides of the baſket; beſides, the baſkets will ſoon rot, without proving any obſtruction to the growth of the plants.

The advantage in planting with balls, either in the full ground, or in pots, is, the root of the plant being encloſed in the ball of earth continues all the while drawing nouriſhment, and the growth of the plant is not retarded in waiting till it has taken freſh root in its new place, which may be of advantage in many places, particularly all tender plants, ſome of our choiceſt ever-greens, and many kinds of herbaceous flower plants.

But planting with balls is not recommended for general practice; for all the hardy tree and ſhrub kind, it would be needleſs as well as very expenſive and troubleſome.

11. *Planting in pots.*]—This is practiſed to all tender exotics, in order for moving them to ſhelter occaſionally, ſuch as all kinds of green-houſe and hot-houſe plants; and it is likewiſe practiſed for many ſorts of hardy flowering-plants, for the convenience of moving ſome curious ſorts when in flower to occaſional ſhelter from the ſun's rays, and exceſſive rains, in order to preſerve their beauty, and prolong the time of their bloom; ſuch as the fine auriculas, carnations, &c.

In planting in pots, it is highly requiſite carefully to adapt the ſizes to the ſize and nature of the different plants intended to be potted; if ſmall plants, begin firſt with ſmall pots, one plant only to each pot, eſpecially if to remain; but according as the different plants advance in growth, ſhift them into pots one or two ſizes larger, which may be requiſite to many ſorts once a year, to others once in two or three years, according to the nature and increaſed growth of the reſpective plants; though to ſome ſorts of annuals it may be neceſſary once or twice in the courſe of a ſeaſon; all of which is generally particularized in the culture of the various ſorts. And by thus beginning firſt with ſmall pots adapted to the ſize of the plants, it is not only cheaper and more commodious for moving and ſtowing them in different parts occaſionally, till they gradually advance in growth, but by thus ſhifting them into pots a ſize larger, it admits of adding freſh earth, which proves highly beneficial to their growth.

Garden pots, for the reception of plants, are of ſeveral regular ſizes, from two to ſixty in a caſt, ſo are diſtinguiſhed at the pot-houſes accordingly, as twos, ſixes, twelves, ſixteens, twenty-fours, thirty-twos, forty-eights, ſixties, or ſixty-fours, &c. in each caſt; each pot having one or more apertures at bottom to diſcharge the ſuperfluous moiſture. They are ſold by the potters at ſo much per caſt, large and ſmall, all of a price; thoſe of only two in a caſt the ſame as thoſe of ſixty; and from two ſhillings to half a crown per caſt is the general price.

But, with reſpect to the particular method of planting in pots in general, the following particulars are neceſſary to be obſerved.

Having the pots and mould ready for the reception of the intended plants, obſerve, previous to planting them, to place ſome pieces of tile, potſherds, or oyſter-ſhell over each hole at the bottom of the pots, both to prevent the holes

being clogged and ſtopped with the earth, and the earth from being waſhed out with occaſional watering; alſo to prevent the roots of the plants getting out; then having ſecured the holes, put ſome earth in the bottom of each pot, from two or three to five or ſix inches or more in depth, according to the ſize of the pot, and that of the roots of the plant; this done, inſert the plant in the middle of the pot upon the earth, in an upright poſition, making its roots, if without a ball of earth, ſpread equally every way, directly adding a quantity of fine mould about all the roots and fibres, ſhaking the pot to cauſe the earth to ſettle cloſe thereto; at the ſame time, if the root ſtand too low, ſhake it gently up as you ſhall ſee occaſion; and, having filled the pot with earth, preſs it gently all round with the hand, to ſettle it moderately firm in every part, and to ſteady the upright poſture of the plant, raiſing the earth however within about half an inch, or leſs, of the top of the pot, it will ſettle lower; for ſome void ſpace at top is neceſſary to receive waterings occaſionally: as ſoon as the plant is thus potted, give directly a moderate watering, to ſettle the earth more effectually cloſe about all the roots, and promote their rooting more expeditiouſly in the new earth; repeating the waterings both before and after they have taken root, as occaſion requires.——Mawe.

Obſervations on planting Trees in general.

The firſt thing in the planting of trees is to prepare the ground (according to the different ſorts of trees you intend to plant) before the trees are taken out of the earth; for you ſhould ſuffer them to remain as little time out the ground as poſſible.

In taking up the trees, you ſhould carefully dig away the earth round their roots, ſo as to come at their ſeveral parts to cut them off; for if they are torn out of the ground without care, the roots will be broken and bruiſed very much, to the great injury of the trees. When you have taken them up, the next thing is to prepare them for planting; in doing of which, there are two things to be principally regarded; the one is to prepare the roots, and the other to prune their heads in ſuch a manner, as may be moſt ſerviceable in promoting the future growth of the trees.

And firſt, as to the roots; all the ſmall fibres are to be cut off as near to the place from whence they are produced as may be (excepting ever-greens, and ſuch trees as are to be replanted immediately after they are taken up;) otherwiſe the air will turn all the ſmall roots and fibres black, which, if permitted to remain on when the tree is planted, will grow mouldy and decay, and thereby greatly injure the new fibres which are produced, ſo that many times the trees miſcarry for want of duly obſerving this. After the fibres are cut off, you ſhould prune off all the bruiſed or broken roots ſmooth, otherwiſe they are apt to rot, and diſtemper the trees; you ſhould alſo cut out all irregular roots which croſs each other, and all downright roots (eſpecially in fruit-trees) muſt be cut off; ſo that when the roots are regularly pruned, they may in ſome meaſure reſemble the fingers of a hand when ſpread open; then you ſhould ſhorten the larger roots in proportion to the age and ſtrength of the tree, and alſo the particular ſorts of trees are to be conſidered; for the walnut, mulberry, and ſome other tender-rooted kinds, ſhould not be pruned ſo cloſe, as the more hardy ſorts of fruit or foreſt-trees, which in young fruit-trees, ſuch as pears, apples, plumbs, peaches, &c. that are one year old from budding or grafting, may be left about eight or nine inches long, but in older trees they muſt be left of a much greater length; but this is to be underſtood of the larger roots only, for the ſmall ones muſt be cut quite out, or pruned very ſhort. Their extreme parts, which are generally very weak, commonly decay after moving, ſo that it is the better way entirely to diſplace them.

The next thing is the pruning of their heads, which muſt be differently performed in different trees, and the deſign of the trees muſt alſo be conſidered; for if they are fruit-trees, and intended for walls or eſpaliers, it is the better way to plant them with the greateſt part of their heads, which ſhould remain on until the ſpring, juſt before the trees begin to ſhoot; when they muſt be cut down to five or ſix eyes, being very careful, in doing of this,

this not to diſturb the new roots. But if the trees are deſigned for ſtandards, you ſhould prune off all the ſmall branches cloſe to the places where they are produced, as alſo irregular branches which croſs each other; and by their motion, when agitated by the wind, rub and bruiſe their bark, ſo as to occaſion many times great wounds in thoſe places; beſides, it makes a diſagreeable appearance to the ſight, and adds to the cloſeneſs of its head, which ſhould be always avoided in fruit-trees, whoſe branches ſhould be preſerved as far diſtant from each other, as they are uſually produced when in a regular way of growth (which is in all ſorts of trees proportionable to the ſize of their leaves and magnitude of their fruit.) But to return: After having diſplaced theſe branches, you ſhould alſo cut off all ſuch parts of branches as have by any accident been broken or wounded; for thoſe will remain a diſagreeable ſight, and often occaſion a diſeaſe in the tree. But you ſhould by no means cut off the main leading ſhoots, as is by too many practiſed, for thoſe are neceſſary to attract the ſap from the root, and thereby promote the growth of the tree.

Having thus prepared the trees for planting, we muſt now proceed to the placing them into the ground; but before this, we would adviſe, if the trees have been long out of the ground, ſo that the roots are dried, to place them in water eight or ten hours before they are planted, obſerving to put them in ſuch manner, as that their heads may remain erect, and their roots only immerſed therein, which will ſwell the dried veſſels of the roots, and prepare them to imbibe nouriſhment from the earth. In fixing of them, great regard ſhould be had to the nature of the ſoil, which, if cold and moiſt, the trees ſhould be planted very ſhallow; as alſo, if it be a hard rock or gravel, it will be much the better way to raiſe a hill of earth where each tree is to be planted, than to dig into the rock or gravel, and fill it up with earth (as is too often practiſed,) whereby the trees are planted as it were in a tub, there being but little room for their roots to extend; ſo that after two or three years growth, when their roots have extended to the ſides of the hole, they are ſtopped by the rock or gravel, ſo can get no farther, and the trees will decline, and in a few years die. But when they are raiſed above the ſurface of the ground, their roots will extend, and find nouriſhment, though the earth upon the rock or gravel be not three inches thick, as may be frequently obſerved, where trees are growing upon ſuch ſoils.

Having thus planted the trees, you ſhould provide a parcel of ſtakes, which ſhould be driven down by the ſides of the trees, and faſtened thereto to ſupport them from being blown down, or diſplaced by the wind, and then lay ſome mulch upon the ſurface of the ground about their roots, to prevent the earth from drying.

This is to be underſtood of ſtandard trees, which caſt their leaves; for ſuch as are planted againſt walls, ſhould have their branches faſtened to the wall to prevent the trees from being diſplaced by the wind, and place their roots about five inches from the wall, inclining their heads thereto; and the ſpring following, juſt before they ſhoot, their heads ſhould be cut down to five or ſix buds.

As to the watering of all new-planted trees, we ſhould adviſe it to be done with great moderation, nothing being more injurious to them than over-watering. Examples enough of this kind may have been ſeen in many parts of England; and by an experiment made by the late Rev. Dr. Hales, in placing the roots of a dwarf Pear-tree in water, the quantity of moiſture imbibed decreaſed very much daily, becauſe the ſap-veſſels of the roots, like thoſe of the cut-off boughs in the ſame experiment, were ſo ſaturated and clogged with moiſture, by ſtanding in water, that more of it could not be drawn up. And this experiment was tried upon a tree, which was full of leaves, and thereby more capable to diſcharge a large quantity of moiſture than ſuch trees as are entirely deſtitute of leaves; ſo that it is impoſſible ſuch trees can thrive, where the moiſture is too great about their roots.

The diſtance which trees ſhould be planted at, muſt be proportioned to their ſeveral kinds, and the ſeveral purpoſes for which they are intended; but fruit-trees, planted either againſt walls, or for eſpaliers, ſhould be allowed the following diſtances: for moſt ſorts of vigorous-ſhooting pear-trees, thirty-

ſix or forty feet; for apricots, ſixteen or eighteen feet; apples, twenty-five or thirty feet; peaches and nectarines, twelve feet; cherries and plumbs, twenty-five feet, according to the goodneſs of the ſoil, or the height of the wall.

It is common to hear perſons remarking, that from the preſent ſpirit of planting, great advantages will accrue to the public by the increaſe of timber; but whoever is the leaſt ſkilled in the growth of timber, muſt know, that little is to be expected from moſt of the plantations which have lately been made; for there are few perſons who have had this in their view when they commenced planters, and of thoſe few ſcarce any of them have ſet out right; for there never was any valuable timber produced from trees which were tranſplanted of any conſiderable ſize, nor is any of the timber of the trees which are tranſplanted young, equal in goodneſs to that which has grown from the ſeeds unremoved. Beſide, if we conſider the ſorts of trees which are uſually planted, it will be found, that they are not deſigned for timber; ſo that upon the whole, it is much to be doubted, whether the late method of planting has not rather been prejudicial to the growth and increaſe of timber than otherwiſe.

Moſt people are ſo much in a hurry about planting, as not to take time to prepare their ground for the reception of trees, but frequently make holes and ſtick in the trees, amongſt all ſorts of rubbiſh which is growing upon the land: nor has any care been afterward taken to dig the ground, or root out the noxious plants; but the trees have been left to ſtruggle with theſe bad neighbours, which have had long poſſeſſion of the ground, and have eſtabliſhed themſelves ſo ſtrongly, as not to be eaſily overcome; therefore what can be expected from ſuch plantations?—This is to be underſtood of deciduous trees; for the pines and firs, if once well rooted in the ground, will ſoon get the better of the plants and deſtroy them.

Every perſon who propoſes to plant, ſhould prepare the ground well beforehand, by trenching or deep ploughing it, and clearing it from the roots of all bad weeds, for by ſo doing there will be a foundation laid for the future ſucceſs of the plantation. Alſo we adviſe no perſon to undertake more of this work than he can afterward keep clean, for all plantations of deciduous trees will require this care, at leaſt for ſeven years after they are made, if they hope to ſee the trees thrive well. Therefore all ſmall plantations ſhould have the ground annually dug between the trees, and as to thoſe which are large, it ſhould be ploughed between them. This will encourage the roots of the trees to extend themſelves, whereby they will find a much greater ſhare of nouriſhment, and by looſening of the ground, the moiſture and air will more eaſily penetrate to the roots, to the no ſmall advantage of the trees. But beſides this operation, it will be abſolutely neceſſary to hoe the ground three or four times in ſummer, either by hand or the hoe-plough. This will be objected to by many, on account of the expence; but if the firſt hoeing is performed early in the ſpring, before the weeds have gotten ſtrength, a great quantity of ground may be gone over in a ſhort time; and if the ſeaſon is dry when it is performed, the weeds will preſently die after they are cut; and if this is repeated before the weeds come up again to any ſize, it will be found the cheapeſt and very beſt huſbandry; for if the weeds are ſuffered to grow till they are large, it will be a much greater expence to root them out and make the ground clean; beſide, the weeds will rob the trees of great part of their nouriſhment. We have ſometimes been told, that it is neceſſary to let the weeds grow among trees in ſummer, in order to ſhade their roots, and keep the ground moiſt; but this has come from perſons of no ſkill. For if weeds are permitted to grow, they will draw away all moiſture from the roots of the trees for their own nouriſhment, ſo that the trees will be thereby deprived of the kindly dews and gentle ſhowers of rain, which are of great ſervice to young plantations; and theſe will be entirely drawn away by the weeds, which will prevent their penetrating of the ground, ſo that it is only the great rains which can deſcend to the roots of the trees. And whoever has the leaſt doubt of this matter,

if

if they will but try the experiment, by keeping one part of the plantation clean, and ſuffer the weeds to grow on another, they will ſoon be convinced of the truth by the growth of the trees. And though this cleaning is attended with an expence, yet the ſucceſs will overpay this, beſide the additional pleaſure of ſeeing the ground always clean.

PLIANT MEALLY TREE. *See* WAYFARING TREE.

PLOUGHING. Ploughs ſeem to have been invented in the rudeſt times, and, till very lately, to have had little improvement. What has been done on this head, however, by ſome ingenious perſons within theſe few years, ſhews what is practicable; and we hope will lead others to the ſame uſeful purſuit.

The firſt kind of tillage was probably with the ſpade, and were that as convenient for large quantities of ground, as it is uſeful where it can be properly employed, no inſtrument in the world could be compared to it.—But when whole fields came to be turned up and tilled, it was natural to deviſe ſome method of ſaving the labour of men; and conſequently, the plough which may be called a kind of ſpade drawn by horſes, was invented.

As this was more and more frequently uſed, its form became probably a little altered, but improvements have been in nothing ſo ſlow: and this inſtrument, of ſuch univerſal uſe, and vaſt advantage and importance to mankind, is ſtill capable of many more; and it ſtill wants them.

All tillage, it is evident, has its advantage from dividing and breaking the earth into a great many parts. The ſpade, as it is wrought by the hand of the workman, does this moſt perfectly, and it is for this reaſon that gardens are more fertile than fields; but it may not be impoſſible, if proper perſons will ſet themſelves about it, now that they know in what the greateſt perfection of tillage conſiſts, to make the plough, by more improvements, equal its effect.

The advantage of the ſpade over the plough is, that it goes deeper, and divides the land into more particles, and ſmaller: but the plough, when its ſtructure ſhall be fully perfected, is certainly capable of this. The four-coultered plough is an excellent contrivance, and ſhews, that there is nothing impracticable in the thought of forming a plough that ſhall go deeper, and divide the earth as much or more than the ſpade.

The ancient plough, according to the beſt accounts we have of it, had no coulter, nor earth-board, for the ſhare, always going obliquely, ſerved as an earth-board; and the two ears which were the corners of a piece of wood lying under the ſhare, did the office of ground wreſts.

This ſort of plough is uſed in Italy, and even in ſome parts of France at this time. It ſerves for the turning up of light land, but it would do nothing with our ſtiff and tough ſoil in many counties.

This, ſo far as we know, was the firſt and original plough, and it is a very plain and ſimple contrivance. It did the office for which it was intended, in the place where it was invented; but it was not fit for other lands, and other countries, and therefore it was altered.

In thoſe parts of Italy, where the ſoil is perfectly ſoft and mellow, this inſtrument does very well to keep it in tillage; but even in theſe favourable lands it is very unfit for the bringing them into this condition; for when they have lain in graſs, and have any turf upon them, it is very difficult to manage them with it. They are obliged to go two or three times over the land before the turf is all broken.

Theſe ploughs, for want of a coulter to cut the turf, tear it to pieces with great awkwardneſs and difficulty, but when it is once cut through, the ſoil being ſoft and tender, they eaſily get deeper.

As our ſoil is very different from that of thoſe countries, our ploughs are neceſſarily made different, for otherwiſe they could not cut it. The neceſſity of a coulter to ours is very plain, becauſe of the thickneſs to be cut, and that neceſſity was doubtleſs the mother of the invention. Our ploughs, when well made, cut off the furrow at the bottom flatwiſe, and therefore it is as thick on the land ſide as on the furrow ſide: but the plough cannot break it off from the whole land at ſuch a thickneſs,

thickneſs, ſo that there muſt be a coulter to cut it off. By this means the furrow is turned perfectly whole, and no part of the turf of it is broken.—Hence if it lie long without new turning, the graſs from the edges will ſpread, and form a new turf or ſward on the other ſide, which was the bottom of the furrow before turning, but is now become the ſurface of the earth.

If the land be left thus, it will ſoon be greener with graſs than it was before ploughing, and the graſs, ſpreading its roots, will bind it firmly and toughly together; ſo that there will require a great deal of time and labour to bring it into a condition for the ſervice it is intended to anſwer.

This has ſhewn the inſufficiency of the common plough, and from a ſenſe of this, has ariſen the invention of the four-coultered kind, to be deſcribed hereafter. Several others have been deviſed to anſwer the ſame purpoſe, but none ſucceed ſo well.

Of the ſeveral kinds of Ploughs in common uſe in England.

The common plough differs very much in ſhape and form in various places; partly according to the fancy of the people, and partly to the nature of the ground. Some have longer and ſome ſhorter beams; and there are great varieties in the length and form of the ſhare, the coulter, and the handles.

In general, without regarding the cuſtoms of particular places, there is great reaſon to have reſpect to the nature of the ſoil on which it is to be uſed. Thus, in general, the plough that is for ſtiff clay ſhould be long, large, and broad, with a deep head, and ſquare earth-board, ſo that it may turn up a large furrow. The coulter ſhould be long, and very little bending, with a very large wing; and the foot long and broad, ſo as to make a deep furrow. The plough for moderate ſoils ſhould be ſomewhat ſmaller than the former, but broad at the breech; the coulter ſhould be long and more bending, and the ſhare narrow, with a wing coming up to arm and defend the earth-board from wearing. The plough for light ſoils, ſuch as ſandy and the like, ſhould be lighter and ſmaller than any of theſe. The coulter ſhould be more circular and thinner, and the wing not ſo large.

This is a direction contained in a ſmall compaſs, yet it will give the farmer the general rule for his conduct in this reſpect: let him conſider his ſoils under theſe three heads of heavy, moderate, and light, and in this general manner ſuit the bulk and fabric of his plough to them, and he will never make any great errors.

Ploughs are ſometimes made with wheels, and ſometimes without, but in general the wheels are a very great advantage; there are circumſtances in which they are troubleſome, and therefore it is fit they ſhould be in ſome ploughs omitted.

The plough, which, from its great advantage above the others, might be eſteemed the firſt great improvement in England, is the wheel-plough; that from the place where it was firſt uſed has been long called the Hertfordſhire plough. This conſiſts of a beam and handle, a neck, an earth-board, a ſheath, a ſhare, a coulter, a pin, pillow, and wheels.

This Hertfordſhire plough, or common wheel-plough, as it is uſually made, is very ſtrong, and is ſerviceable for moſt uſes: it is very eaſily managed, it follows the horſe lightly, and it ſuits almoſt every kind of land. The greateſt exception to its uſe is in miry clay in winter; becauſe the wheels cut into them, and clog and ſtick when they are work'd at that time of the year. This is fit for that ſort of ground when ſummer fallows are to be ploughed, and when a graſs ground is to be turned up for arable, for it turns the turf very well, and is very fit for uneven ground, and for the drieſt ſummer weather. Some make this plough in the original manner, with the handle ſloping of one ſide, but this renders it troubleſome to hold, or to follow; the remedy was very eaſy, and people, not bigotted to fooliſh cuſtoms, have improved it greatly by making it ſtrait.

This is in a manner the general plough uſed at this time, and it is varied more or leſs, but never much, according to the pleaſure of the owner, or faſhion of the place.

The Eſſex plough, (for the beſt way to diſtinguiſh theſe inſtruments is according to the places where they are uſed)

uſed) has its earth-board, if the expreſſion may be allowed, made of iron; by this means they make it rounding, and this has a great advantage in the turning of the turf; they generally make it light and fine, and the wheels proportioned. It is in this way very fit for light ſoils, and rids a great deal of buſineſs. We do not mean by calling this the Eſſex plough, that they uſe no other in that country; but that is the place where this kind is moſt uſed, and ſeems to have been invented.

The Lincolnſhire plough owes its invention and form alſo to the general nature of the ſoil of that county. The fen land of that place is light, ſoft, and mellow, free from ſtones, and naturally over-grown with weeds and ſedge on the ſurface; for this land they uſe a plough with a circular turning coulter, and a large ſharp ſhare; this is often a foot broad, and quite ſharp at the edge. This plough has no wheels. There is a foot at the fore part of the beam, which they ſet higher or lower with a wedge, and by that means they keep the fore part of the plough from going deeper than they chuſe. And they have alſo wedges for ſetting the hinder part where the handle joins the beam. The coulter ſtands in its uſual place before the ſhare, and is a round iron wheel, with a ſharp edge, that turns upon an axle as the plough moves, and cuts through the roots of the ſedge and graſs as it goes round, while the broad ſhare cuts the bottom. This would not do on other land, but where the ſoil is of this free and fine kind, and is thus covered with a tough and tangled matting of roots, it anſwers the purpoſe excellently.

The dray or drag plough was at one time, in a manner, univerſal, and there is no particular place where it can be ſaid to be moſt in uſe at this time; for it is retained in ſome, and rejected in others, according to the ſenſe and ſpirit of the farmers in adopting improvements. It is a very plain and ſimple kind; but notwithſtanding the advantage the others have over it, on many occaſions, this ſtill excels them all for wet clays in the winter ploughings; for having the leaſt workmanſhip of any, it is the leaſt apt to clog, and having the feweſt parts it is fitteſt for ſuch ground, where nothing is required but going on, and turning up. It is limitted to this uſe; for on other ſoils, and at other ſeaſons, it is very much inferior to the other kinds. This plough has no wheels, and it conſiſts of a beam, handle, earth-board, and ſhare, and is ſet higher or lower, as they find occaſion, by wedges at the ſheath.

In ſome counties they have a plough with one wheel; it is a very ill-contrived, and very inconvenient inſtrument. 'Tis broad in the breech, and therefore it draws very heavily. It is a clumſy and ill-contrived kind, that is growing out of uſe; and of all the ploughs that have been invented, is the leaſt worth introducing any where.

The largeſt kind of plough uſed in England, or perhaps in any part of the world, is that which, in ſome parts of the county of Cambridge, they uſe for cutting of drains. This is of the ſhape of the common plough, and has no wheels: it is very bulky in all its parts, and has two coulters; one of theſe is fixed in the beam as uſual, and the other in a piece of wood, faſtened to the beam for that purpoſe; theſe both turn inwards, and cut each ſide of the trench. The ſhare is very broad and flat, and cuts the bottom of the trench. The earth-board is three times as long as in other ploughs, and caſts the earth a great way off the trench. This inſtrument cuts a trench a foot and a half wide at the top, a foot at the bottom, and a foot deep. It is excellent for this purpoſe on wet lands, ſaving a great deal of the expence of work in the common way of digging trenches by hand, but it requires a great number of horſes to draw it. There is ſomething in the contrivance of this plough, that may be uſeful farther than in the making of trenches, and it is for that reaſon propoſed here to the farmer's conſideration.

Of the uſes of the common Plough, and their proper make.

Where there is a hard and firm ſoil; or where the land is full of flints, ſharp ſtones, and gravel, no plough whatſoever does ſo well as the two-wheel'd kind, which may be ſuited to the occaſion according to the directions already given, with reſpect to ſtrength: and where ſtrong clays are to be wrought in ſummer fallows, no other plough

plough is equal to it. The point of the common plough will fly out every ſtep on theſe occaſions, but this will anſwer very well when the earth is ſo baked and hardened by the ſun, that no other will penetrate. The wheels of this plough ſhould be about twenty inches in diameter, and it will always run beſt if the furrow wheel be made a little larger than the other.

A great advantage of this plough alſo is, that it will work upon uneven ground without levelling, ſo that none is equal to it for the ploughing up of paſtures, where there are mole-hills, and other irregularities. Theſe diſturb the other plough extremely, even the leaſt of them, but this goes through all.

Although the ſingle wheel plough be ſo clumſy and ill-contrived an implement, there is no reaſon why the uſe of a plough with one wheel ſhould be rejected. A very light and ſlender-made plough may be furniſhed with one wheel inſtead of two, and it will anſwer excellently on light ſandy ſoils. It will not be fit for harder work, but, running eaſily, it will ſerve this purpoſe better than any other.

The common two-wheel'd plough is to be drawn with horſes or oxen, two a-breaſt. The heavy plough without wheels, which is uſeful for wet clays, and other very heavy and diſagreeable work, is to be drawn by three, four, or five horſes in length. The great uſe of this is where the ground lies level, and where there are no obſtructions of roots, or the like, for theſe greatly diſturb its operation. The two-wheel plough is preferable in ſuch caſes, notwithſtanding all its inconveniences.

Whichever of theſe ploughs the huſbandman chuſes, let him take care, in the make of it, that it be ſuited to the ſoil upon which he is to uſe it. Let him ſee that it be made larger if it be for deep or ſtrong ſoils, and lighter and ſmaller if for the light and ſhallow ones. When the land is ſtiff and deep, let the coulter be long and ſtrong; in the deepeſt ſoils the coulter muſt go the deepeſt, becauſe the weeds root deepeſt there.

Of whatever form, or whatever degree of ſtrength, let him ſee that the iron work be made true as well as ſound; for on the exactneſs of this part of the inſtrument, depends the going of it true to the pitch at which it is ſet, and its keeping to the line wherein it is placed, without running out on one ſide or the other.

As ſo much depends upon the iron work, it is a very prudent method to have that made firſt, and wrought to a perfect truth, and then to have the wood work made to it: for in the common way of making the iron to the wood work, the Smith is often forced to work wrong in order to ſuit it: in this caſe no art will make the plough go well. Let him take care that the iron work is wrought ſmooth, and rightly tempered; and that it be kept bright and clean in the uſing.

The ſhorter and leſs the plough, the eaſier it is worked; but though this be a recommendation in light ſoils, there is no uſing of ſuch as have not a due weight and ſtrength in tough and heavy work.

Of the improvements of the common Plough.

The regard that has been ſhewn to huſbandry of late years has occaſioned ſeveral improvements of the plough, for particular and alſo for general purpoſes, and ſeveral new forms and kinds have been invented, ſome rather fanciful than advantageous, but others extremely uſeful. There is no part of huſbandry in which more improvement may be made, nor in any in which it will be ſo immediately or certainly uſeful.

A double plough has been invented ſome years ago, and is at this time in uſe in ſome places, by which a double quantity of land is ploughed at a time, one furrow by the ſide of another.—As this requires twice the number of horſes, the expence is nearly equal to the advantage: but this is a hint capable of improvement, for although in tough and deep ſoils it loſes its benefit, from the neceſſity of a double expence, yet certainly in ſome of thoſe light and ſhallow lands we have in Buckinghamſhire, and other places, a double plough might be ſo contrived, as to be drawn by two horſes, and managed by one man; and then certainly the advantage would be double, and the expence the ſame.

There has alſo been a contrivance of a plough that turned up two furrows at once one under another. But it is

so unwieldy, and difficult of draught, that in its present form it will never get into reputation, nor does it deserve it; but we have seen already, what would be the advantage of ploughing deeper than ordinary, and that is enough to spirit up some who understand a little more of the mechanic arts to contrive one upon the same plan with more judgment. Doubtless it is possible to obtain this advantage of deep ploughing with much less trouble than attends it in the plough that has hitherto been contrived for that use.

We have observed, that the digging with the spade is a much finer and more excellent tillage than that with the plough; and that the reason why our gardens are more fertile than fields of the same soil and with the same manure is, that the spade digs deeper, and breaks the particles of earth finer.—Now a plough constructed upon this plan, with better judgment in the fabrick of it, would have both those advantages: it would dig full as deep as the spade, and might be made to break the earth as much. It is surely worth the while of those who have a knowledge in the proper arts, to devote some of their studies to this improvement of the plough, which is doubtless the most useful engine in the world; and at present very deficient, even in its most improved state. The adding breadth to the fin of the dray or foot plough, will at all times make it more and more serviceable in damp and stiff clayey lands; and in ploughing these, the horses should always go at length, that they may tread less of the ground: on the other hand, in light soils, the cattle, whether horses or oxen, should always goa-breast, for the double treading is serviceable to such land, in the same manner with the treading of sheep when they are folded upon it. In stony ground that has grass of some standing upon it, the plough should have a round pointed share, with a fin to cut the roots of the grass, for the broad fin is apt to jump out of the ground.

In ground that has been wood, and has roots remaining; or in other places where there are a great many large roots in the way, it is a very good method they use in some parts of Staffordshire, of having an instrument of iron, with a sharp edge, set through the beam of the plough, behind the coulter, and through the plough-head. This, at the same time that it arms the plough for cutting these roots asunder, if rightly fixed, strengthens the whole frame of it, and makes it able to bear the rough work there often is in these places, and which else would tear it to pieces: in other places thereabout, they use a couple of sharp wings of iron made fast to the plough-share, which answers the same purpose, but does not so strengthen the plough.

But these are all of them improvements, which rather shew what may be done, than execute it well in themselves; they may be considered as hints to what is proper, rather than as compleat things: there remains one to be spoken of in which the improvement is very great, and is carried to a due degree of perfection; so that the farmer has no more to do than to order it to be made according to the description.

This is the four-coultered plough, so highly and so justly extolled by the author of the Horsehoeing Husbandry.

Of the Wheel Plough.

The foundation of this instrument is the common two-wheel'd plough, in its most improved condition, from which it differs in the having three additional coulters; so that instead of one there are four. We shall here consider this wheel plough in its most improved state; and hereafter describe the four-coultered plough form'd upon it.

This plough consists of two parts, distinguished by the names of the plough-head, and plough-tail. The head has two wheels of about eighteen inches diameter, the spindle or axis of these is of iron, and passes through a box which stands crosswise of the beam. This spindle turns round both in the box and in the wheels. From this box rise two perpendicular staves, called crow staves; these are fastened into the box, and have each two rows of holes, by means of which the beam of the plough is raised or sunk at pleasure, in order to increase or diminish the depth of the furrow. This is done by pinning higher or lower a cross piece, which is called the pillow, because the plough beam rests upon it. At the top of the two crow staves is another cross piece, called the gallows. The

crow ſtaves paſs through this by mortiſes, and are pinned into it. From the box of the plough within the ſtaves, there is carried a ſmall frame compoſed of two legs, and a croſs top, to which the links of iron are fixed, by which the plough is drawn; this frame is called the wilds of the plough. In the middle of the box there alſo is a hole into which is let one end of an iron chain, the other end whereof is faſten'd to the middle of the beam, this is called the tow chain, and faſtens the head and tail of the plough together: at the end where it reaches the beam, this has a collar that goes round it, and is faſtened by a ſtake within ſide the box. This ſtake is held up to the left crow-ſtaff by a wyth, which paſſes round it above, and under the end of the gallows below: a piece of cord is ſometimes uſed inſtead of a wyth: any thing that may be tied will do. From the top of this ſtake goes an iron chain, called the bridle chain; this is faſten'd at one end to the top of the ſtake, and at the other to the middle of the beam of the plough, by a pin in the ſame place where the collar of the tow chain paſſes round it.

This is the ſtructure of the head of the plough, and theſe are its ſeveral parts:

The tail conſiſts of the beam, which is a ſtout and long pole, through which, a little below the pin that holds the bridle chain, and the collar of the tow chain, there paſſes the coulter, a long and ſlender iron inſtrument, which running downward and a little forward, ends near the point of the ſhare. This coulter is fixed in its hole of the beam by a wedge, ſo that it can be raiſed or ſunk at pleaſure; behind are two handles, the one longer and the other ſhorter; the ſhorter of which meets the head of the fore ſheat, where it enters the beam, and is fixed by a pin, and faſtened to the top of the hinder ſheat by another pin. Theſe ſheats are two boards, the hinder one near the extremity of the beam; the other forwarder and more ſlanting, and are both faſtened to the ſhare, which runs flat below. On the other ſide of the plough tail deſcends another flat board, called the drock; to this the ground-wriſt is faſtened, which is a board running nearly parallel with a ſhare. The longer of the two handles is alſo faſtened to the drock, and the earth-board riſes at its bottom. The fore-ſheat is ſupported by a double retch, which paſſes through the beam, and is faſtened by ſcrews and nuts.

This is the four-wheel plough as uſed at preſent in the places where agriculture is moſt underſtood, and beſt practiſed: we ſee it conſiſts of more parts than the two wheeled plough of Hertfordſhire, according to the firſt invention, but there is not one of theſe added parts but is an advantage in either ſtrength or convenience.

Of the four-coultered Plough.

The beam of the common two-wheel plough, is uſually eight foot long; the proper length of the beam of the four-coulter'd plough, is ten feet four inches. The beam of the common kind is ſtrait all the way, but that of the four-coultered plough riſes with a bend when it comes toward the wheels, to where it reſts upon the pillow. The beam, ſuppoſing the plough to ſtand upon a level ſurface, would be at the end of the plough-tail only eleven inches and a half from the ground: at the place where the bend begins, which is a litttle before the firſt coulter, it will be one foot eight inches and a half; and where the beam bears upon the pillow, two feet ten inches. This is the proper make of the beam of the four-coulter'd plough.

The four coulters are thus diſpoſed, meaſuring from the tail or extream end of the beam behind. From this extremity to the back of the firſt coulter, is three feet two inches; this coulter has its point near the ſhare: from the back of the firſt, to the back of the next coulter, is thirteen inches; from thence to the third thirteen inches, and from thence to the fourth the ſame. So that from the end of the beam behind, to the place where it begins to bend upwards, which is a little before the fourth coulter, counting from the tail, is ſeven feet. The length of the additional coulters, particularly of the fourth, or that next the head of the plough, would be a great inconvenience in this machine, but that is prevented by the bending of the beam toward the head. If the beam were ſtraight as in other ploughs, theſe coulters muſt be very long to reach the ground, and they would

would require to be very ſtrong, not to bend, and this would make them expenſive and cumberſome; and at the ſame time their length, if ever ſo well formed, would make them apt to looſen the wedges wherewith they are fixed in the holes. This would make the coulter riſe up out of its work, but by this contrivance of a crooked beam, a moderate length in the coulters ſerve; they do not require any great thickneſs or quantity of iron, and they always work with regularity.

As to the materials, the beam may be made of aſh or oak, according to the nature of the ground whereon it is to be employed; for aſh has the advantage of being light, but the oak is vaſtly ſtronger; ſo that when the work will be very hard, the oak, in ſpite of its weight, is preferable. As to its breadth and thickneſs, they may alſo vary according to the ſoil that is to be tilled; but for moderate ground, the beam at the firſt coulter hole ſhould be five inches deep and four broad.

Giving this as a middling proportion, the ſize of the other parts may be as follows. The fore ſheat, commonly called ſimply the ſheat, ſhould be ſeven inches broad; the retch upon it muſt be of iron, and its left leg muſt ſtand foremoſt, that the edge of its forepart, which is flat, may ſit cloſe to the wood of the ſheat. The uſe of this retch is to hold the ſheat up to the beam, which it does by means of nuts and ſcrews. Through the top part of the ſheat there is alſo to be a hole, which is to be a ſmall part within the beam, ſo that a pin being driven into the hole, draws up the ſheat very cloſe to the beam. The elevation of this ſheat is a very great article in the management of every wheel plough. If this make an angle of more than five and forty degrees with the plain ſurface whereon the plough ſtands, that inſtrument will never go well. In the four-coulter plough it ought to make an angle of forty-two or forty-three degrees only.

This ſort of expreſſion will be very well underſtood by thoſe who are uſed to mechanics; but for the ſake of the common farmer, we ſhall ſay all that is meant by it is, that the ſheat is to be a little leſs raiſed in this than it is in a well-going common wheel plough.

The length of the ſhare from the point to the tail, ſhould be three feet nine inches. The fin of the ſhare riſing ſlanting from the point upwards. The point of the ſhare ſhould be three inches and a half long, flat underneath, and round at the top, and this ſhould be of hard ſteel underneath. The edges of the fin alſo ſhould be well ſteeled, and its length proportioned to the nature of the ground.

Behind the fin is placed the ſocket, into which the bottom of the ſheat, before deſcribed, enters; and from the tail of the ſhare is to riſe a ſmall plate of iron, this is to be well rivetted to the ſhare: by this the tail of the ſhare is faſtened to the hinder ſheat. This faſtening is done by an iron pin, with a ſcrew at the end, to which a nut is to be ſcrewed on the inner ſide of the ſheat.

The ſocket is to be a mortiſe of about a foot long, at the upper part two inches deep, and the fore end muſt not be perpendicular, but made ſlanting, conformable to the fore part of the ſheat that enters into it. The upper edge of the fore part of the mortiſe muſt bear againſt the ſheat; and if it be not quite ſo ſlanting as the ſheat, a little of the wood is to be pared off at the edge to make it fit.

The upper ſide of the ſhare ſhould be perfectly ſtrait, but its neck on the under ſide ſhould ſtand a little hollow from the ground. This hollowneſs ſhould be about half an inch in a common plough, but in the four-coultered plough it ſhould not be above a quarter of an inch. So that the ſhare, when it is firſt made ſtanding upon its bottom, bears upon the level ſurface only in three places; theſe are the point, the tail, and the corner of the fin. The hollowneſs of the fin muſt be greater in a ſtony ſoil than in others.

The placing of the ſhare rightly upon the ſheat is the moſt important, and the moſt difficult part of the Plough-right's trade: on this depends the well going of the plough, and for this reaſon; as it is more important in the four coultered plough than in any other, we adviſe the farmer when he has made himſelf a maſter by theſe deſcriptions of the form and ſtructure of this plough, to take care that he employ a ſkilful and an honeſt workman; and if he do not find the plough go well when

made, to look there for the occaſion of the fault, for in that part is generally the ſeat of it.

The groundwriſt is to be of iron, its length muſt be two feet five inches, its breadth at the longeſt end four inches, and is to go ſomewhat ſmaller all the way. Its thickneſs in general is to be three-eighths of an inch; but at the ſmaller end it is to be much thinner, that it may be capable of bending ſo, that it can be brought cloſe to the ſhare.

At the ſmaller end of the groundwriſt are to be four holes, through one of which there goes a nail that faſtens the groundwriſt to the ſheat. This paſſes through a long hole which is made in the ſide of the ſocket of the ſhare. The ſpace between the outſide of the groundwriſt, to the outſide of the ſhare, is eleven inches and a half, and this is the width of the lower part of the plough-tail at the ground: at the upper ſide of the broad end of the ground-wriſt there are alſo ſeveral holes by which it is nailed to the lower part of the drock; this is long, narrow, and has three holes for the reception of its faſtenings.

The earth board has a riſing near its end, which takes hold of the end of the ſheat to faſten it the more firmly; and near that are two holes by which it is fixed to the ſheat; at the other end alſo there is a hole, by which it is faſtened to the drock.

The pin which faſtens the earth board to the drock, is to be thicker in the middle than at the end, and this prevents the earth board from coming near the drock. By means of this pin the earth board is alſo ſet at a greater or ſmaller diſtance from the drock, as there is occaſion ſometimes to throw off the furrow farther from the plough than at others. It always ſtands a good deal farther out on the right hand than the groundwriſt, and this is one reaſon why the drock is made crooked, bending outwards in that part.

The long handle of the plough is to be five feet four inches in length, and four inches broad in the wideſt part. It is to have holes in its lower part for pinning it to the ſheat, and another near its upper end, by which it is faſtened to the drock.

The length of the ſhort handle is three feet nine inches, and it is to have two holes, both toward its lower end: by the upper hole it is pinned to the hinder ſheat, and by the lower to the top of the fore ſheat above the beam of the plough.

We come now to deſcribe the placing of the four coulters in the beam of this plough, contrived for their reception; this is the moſt important article of all: and the greateſt point to be obtained is, that the four imaginary planes, deſcribed by the edges of the four coulters, as the plough moves forward, be all parallel, or nearly ſo, for if this be not regarded, they will not enter the ground together.

To make ſure of this important point, the holes for the coulters muſt be made in the beam of the plough in the following manner. The firſt coulter is to be placed as already directed, the ſecond coulter hole is to be made two inches and a half more on the right hand than the firſt: the third two inches and a half more on the right hand than the ſecond; and the fourth two inches and a half more on the right hand than the third. This will place the four coulters conformable to the four cuts they are to make in a ten-inch furrow.

Now no beam of a plough is broad enough to hold theſe holes in this direction, and for that reaſon a piece of wood is added to the beam of the four coultered plough to give ſpace for it. This piece is to be very well faſtened to the beam, and the ſecond hole is to be made, as will be ſeen, according to the diſtance, partly in the piece, and partly in the beam; and the others will be all made entirely in the piece. The piece is beſt faſtened by three good ſcrews with their nuts, and its place is on the right ſide of the beam. The diſtance of each hole to the right of the laſt, muſt be meaſured from the middle of one hole to the middle of the other.

The fore part of every hole muſt incline a little to the left, ſo that the backs of the coulters may not bear againſt the left ſide of the inciſions made by the edges. Each hole is to be a mortiſe of an inch and quarter wide, with its two oppoſite ſides parallel from top to bottom. The length at the top is three inches and a half, and

and at the bottom three inches; and the back of each is not perpendicular, but ſlanting, and makes the coulter ſtand ſlanting. It is fixed in this mortiſe by a pole wedge in the ſame manner as the coulter is in other ploughs.

The coulter is a kind of iron knife, conſiſting of two parts; a handle, and blade; the latter having an edge.—— The length of the coulter is to be two feet eight inches, but it will ſhorten in wearing; the blade is to be ſixteen inches long, with its edge running all the way along it; the handle is to be of the ſame length. This is ſo long that it will at firſt very well ſtand up above the beam, but it muſt be driven down lower and lower, as the point ſhortens by wearing. The handle is to be an inch and ſeven-eighths broad, and ſeven-eighths of an inch thick throughout.

The firſt coulter in all ploughs ſhould be ſo placed, that its back ſhould bear againſt the back of the hole; its right ſide above to bear againſt the upper edge of the hole, and its left ſide to bear againſt the lower edge: and for this reaſon there always are required at leaſt three wedges to hold a coulter in its place. The pole wedge ſtands before it, the other two, one on the left ſide above, and the other on the right ſide underneath: and the hole muſt be ſo made, that the coulter ſtanding thus acroſs it, its point may incline two inches and a half or more toward the left than the point of the ſhare, if it were driven down as low as it: but it ſhould never be ſo low in any plough whatſoever. As to its bearing forwards, the point of the coulter ſhould never be before the middle of the point of the ſhare. It muſt be ſet obliquely with reſpect to the ſhare, and it muſt never be ſet much more ſlanting; for if it ſhould, it would have greater force to raiſe up the pole wedge, and would be continually getting looſe.

In the four coultered plough, the three other coulters are to ſtand in the ſame poſture with this in reſpect of the inclination of their points to the left: this is a great advantage to them; for by that means when the fin is raiſed up by turning the handles toward the left, their points do not riſe out of the ground on the right hand as they otherwiſe would. With reſpect to their pointing forwards, experience ſhews, that every one of the three ſhould be ſet a little more perpendicular than the next behind it; ſo that the fourth coulter will ſtand neareſt to perpendicular of any of them.

None of theſe coulters ought to deſcend ſo low as the bottom of the ſhare, unleſs when the ploughing is very ſhallow. It is always ſufficient that they cut through the turf, however deep the plough go into the ground.

When the ploughing is to be very ſhallow, the fin of the ſhare ſhould be broad enough to cut off the fourth piece of the furrow.

The nut which ſerves for faſtening the piece to the beam of the plough, ſhould have two oppoſite corners turn'd up, by which it may be driven round with a hammer. This has ſo great a force, that three of theſe will hold the beam and the piece as firmly together, as if they were one bit of wood. In dry weather the wood will ſhrink, and then the nuts are to be driven farther on. The ſame caution muſt be obſerved in other parts of the plough.—— Between the nut and the wood there ſhould be a thin piece of iron by way of bolſter: this prevents the nut from wearing into the wood; it muſt be ſomething larger than the nut, and of the thickneſs of a ſhilling. Some uſe a piece of leather, but when the nut is to be often ſcrewed, iron is much better.

There muſt alſo be iron plates upon all the coulter holes, both above and below. Theſe muſt be nailed on with nails made for that purpoſe.

Inſtead of a collar moving round the beam, 'tis much better to have a ſquare one with an open end, which ſhall faſten to it by a couple of crooks.—— Theſe muſt turn upwards, that they may not lay hold of any thing that ſhall be turned up under the plough: the front or cloſe-end of this collar is to be a ſtrong iron bar, with ſeveral notches. Two pins are to be driven into the beam of the plough, juſt behind the ſecond coulter hole, one on each ſide: and there is to be another crook, called a (C) from its ſhape, which is to go over the cloſe end of the collar. Each end of this is a hook, and one of theſe lays hold of the croſs bar of the collar, going into one of its notches; and

and to the other is fixed a link, which holds the tow chain to the collar.

The uſe of theſe notches, and this fix'd poſition of the collar is this; that as the ſhare wears at the point, it always inclines a little to the right; and this is remedied by removing the crook into another notch of the croſs bar of the collar, ſo that the point of the ſhare is thus always kept in a proper direction. The length of each ſide bar of the collar ſhould be a foot.

We have ſhewn that the tow chain of the plough is faſtened within the box by a ſtaff paſſed through its firſt link, as the hook of the collar holds its laſt. This ſtake is commonly nailed, to prevent its flying out of its place. And when the plough is to be drawn a little nearer the crow ſtaves, the method is to take in another link of this chain, paſſing through the ſtake, and faſtening it as before: or it may be done better by taking hold of the crook of the collar, with a ſecond or third link of the chain. This ſhortening of the chain always draws the point of the ſhare a little to the left.

For drawing of the plough there is faſtened to the box an iron machine, called the wilds; this is very like the ſquare collar, only its legs are longer. The croſs bar at the top is notched as that of the ſquare collar, but only one leg of the wilds is fixed to this ſquare bar in the making; the other leg is looſe, and has a loop through which the other end of the croſs bar is put, ſo that it is fixed on at pleaſure. Both theſe legs of the wilds paſs through the box of the plough, and are faſtened in behind it by a couple of hooked pins made for that purpoſe. The holes cut through the box for letting theſe legs paſs, are to be made ſlanting upwards, ſo that the fore part of the wilds may be higher than the hinder; otherwiſe the upper end of the crow ſtaves will lean quite back when the plough is drawn. The uſe of the notches in the bar of the wilds, is to give the plough a broader or a narrower furrow. A double crook with a link is fixed to this bar, and by this the horſes draw. If the cattle are tall, the traces muſt be long, elſe they will be apt to raiſe the wheels off the ground, and overturn the plough.

The legs of the wilds ſhould be eight inches and a half aſunder, and their length nineteen inches: the links are to be ſix inches and a half long. They are to be put into two notches diſtant from one another, or elſe one wheel of the plough will advance before the other. When they are moved to the notches on the right hand, it brings the wheels toward the left hand, which gives the greater furrow; and, on the contrary, when they are moved on the notches on the left hand, it gives the plough a leſs furrow, by bringing the wheels towards the right.

The height of the wheels we have mentioned already, as alſo the proper method of making one of them higher than the other: their diſtance ſhould be two feet five inches and a half, as ſet from one another on the ground.—The crow ſtaves ſhould be one foot eleven inches high from the box of the plough to the gallows that goes acroſs them: theſe are to ſtand upright upon the box, and they ſhould be ten inches and a half aſunder.

The pillow which croſſes the ſtaves below the gallows, is to be pinned up at its end by two ſmall iron pins, and it is convenient to keep theſe chained to it, that if they chance to drop, they may not be loſt.

The height from the ground to the hole in the box where the tow chain paſſes through, is to be thirteen inches. This brings it to two inches below the holes of the wilds, on the hinder ſide of the box.

The height of the plough at the place where the other end of the tow chain is faſtened to the beam, ſhould be twenty inches from the level ground; and about the middle of the tow chain there ſhould be a ſwivel, that one end of the chain may turn without the other.

This is the conſtruction of the four coultered plough; and as it is founded upon the two wheeled plough improved to the greateſt perfection, the parts of that plough can never be ſo well underſtood as in the deſcription here given for their perfect and exact conſtruction. It is very neceſſary that he who would undertake to make, or to give orders for the making of a four coultered plough, ſhould firſt thoroughly underſtand the conſtruction, parts, and compoſition of a perfect one with a ſingle coulter; and we have by this means

means avoided the repetition of a long and dry detail of the parts.

We have before ſhewn what was the firſt conſtruction of the wheel plough, which was a vaſt improvement upon the inſtruments in huſbandry of that time; and we have here explained its farther advances toward that perfection, which it may be juſtly ſaid to have attained in the four coultered kind.

When the four coultered is made, let it be tried with the ſingle coulter before the others are put on. There may be a fault in the work that cannot be diſcovered, even by a judicious eye, till it is tried; and this may prevent its going as it ought. That plough which will not go well with one coulter, certainly would not with four; but it would be very unjuſt to charge upon the number of the coulters, what is really the fault of ſome part of the ſtructure of the inſtrument itſelf, independent of that addition.

If the plough goes well with one coulter, then put in the other three; there is not much fear but it will alſo go well with them. If it do not, then let the poſition of the three additional coulters be examined; and let it be ſeen in what that differs from the rule, laid down here for that purpoſe. That it differs in ſomething need not be doubted; for of a certainty, if they be rightly diſpoſed according to theſe directions, the plough will go well.

To know whether a plough goes well, examine the furrow: if that be of an equal depth on the right hand and on the left; and if the plough turns it off fairly, it is right. If in the going of the plough, the tail of the ſhare, and the bottom of the drock bear againſt the bottom of the furrow; and if it goes eaſy in the hand of the holder, without preſſing one arm more than the other, the farmer may be aſſured it is a good one. Such a plough will go with four coulters as well as one.

Of the management of a Plough in working.

When the farmer has got his plough well made, let him ſee that he keep it in order; and that he employ a man in the working, who is able to manage it as he ought, and who has honeſty enough to take the neceſſary care and pains. The farmer depends more upon the integrity and knowledge of his ploughman, than on the qualities of any other ſervant whatſoever.

The handles of the plough being made of that length we have ordered, are very uſeful for the proper guiding of that inſtrument; but often the ploughman will cut them ſhorter to favour his idleneſs. When they are ſhortened, he can bear his whole weight upon them, and in a manner ride inſtead of walking. If he ſhould play this idle trick with long handles, his weight would tilt up the fore end of the beam, and raiſe the ſhare out of the ground. The keeping the arms long therefore prevents this negligent trick, and at the ſame time gives him an opportunity of managing the plough to the greateſt advantage.

An awkward ploughman will be continually overſetting the two wheel'd plough; but a careful perſon, who is uſed to the management of it, hardly ever meets with ſuch an accident.—The great danger of over-turning is, at the going out at the land's end, from one furrow to another. But the ſkilful ploughman lifts his plough a little round, and then holds up the crow-ſtaves with the end of the beam, by preſſing his hand hard againſt the handle, while the plough lies down on one ſide, till the horſes, the wheels, and the body of the plough come nearly to a line in the beginning of the furrow; and then he lifts up the plough and goes on.

Theſe little contrivances are exceedingly uſeful. They are more eaſily ſeen in the practice, than taught by words; but what is here ſaid may ſerve to let the farmer know when his ploughman manages his buſineſs right, and when he does not; and may aſſiſt him in the giving one that is willing directions.

In the four coultered plough there is another inconvenience very likely to happen, but very eaſily remedied: this is, that ſometimes the firſt or leſt furrow is apt to come through betwixt the firſt coulter and the ſhear, and in this caſe it falls upon the left hand ſide of the plough.

This, though not of the conſequence of many other faults, yet it is worth preventing, and the more as the remedy is eaſy. To this purpoſe let the ſecond coulter ſtand a little higher than the

the third; and then the ſecond furrow holding the firſt at its bottom, will carry it over together with itſelf, and throw it on the right ſide of the earth-board.

Let us give the farmer one caution farther in this matter; which is, that in this placing the coulter, he never ſets it ſo high that it does not cut the turf through. As to the firſt coulter, though it ſhould cut but an inch or two within the ground, the ſhare will break off the firſt furrow in raiſing it up.

If in the ploughing with this four coultered kind, the coulters become clogged and loaded with pieces of the turf, a boy ſhould go by the ſide with a forked ſtick to clean them off from time to time, which is done very eaſily.

The coulters being diſpoſed exactly as we have deſcribed, will have more ſpace between them above than below, ſo that this clogging will not happen often, and when it does, the cleanſing is eaſily performed. The farmer may always know when he ſhall have occaſion for a boy to follow for this purpoſe, becauſe it riſes not from the fault of the plough, but the nature of the ground. This plough in clear ground goes as free and clean as any; but when there is a great quantity of couch graſs on the land, its roots hold the turf together in ſuch a manner, that it riſes in pieces, and hangs between. This is the only occaſion on which there is a need of ſuch aſſiſtance; but if it be not taken care of, the load of clogging matter will fill the ſpaces between the coulters, and raiſe up the plough out of its work.

In the common two wheel plough there is a very great inconvenience too frequent, and of very bad conſequence, this is, the leaving a great part of the land unturned from the ſhare's point going too much to the left. The conſequence of this is, that the work is done irregularly, and often a great part of the ground which is covered by the broken earth, is whole and untouched, and the weeds are found afterwards growing upon it. This is a great fault: it defrauds the farmer of ſo much of the buſineſs he engaged ſhould be done; and there is nothing he ought to look into ſo carefully.

Sometimes he will find it happen from the imperfection of the plough itſelf, and then he is to apply to the maker. The well going of a plough principally depends in the placing of the ſhare rightly upon the ſheat; and in this caſe the remedy muſt be by an amendment in that article. This is the niceſt and moſt difficult part of the ploughwright's buſineſs, and is what the farmer is moſt concerned of all other to ſee done well: it matters not that the maker can tell him, or ſhew him it is right as it ſtands upon the ground, let him try it in ſome work, and never be ſatisfied with it till it anſwers his expectation.

This fault laſt named, though it ſometimes be owing to the make of the plough, yet may alſo ariſe only from the folly of the ploughman's ſetting it wrong: therefore this ſhould be tried firſt. His fault is the ſetting it ſo that the point of the ſhare turns too much to the left: in this caſe it will always cut croſly, and leave a part of the ground untouched, though covered by that which has been cut, and is thrown over it.

There is no part of his buſineſs which the farmer is more under a neceſſity of following with his own eye than this. His intereſt is engaged in the well executing of it, though the ſervants' are not. It is eaſy to plough too ſhallow, or too deep. Where there is a full ſoil, the deeper the plough cuts the better; but where the ſoil is ſhallow, and the bottom bad, let there be great care taken that the clay, or whatever other bad matter it may be, ſhall not be turned up with the ſoil. He ſhould himſelf overſee this that his ploughing may give him all the advantage, and avoid all the diſadvantage there is in the condition and nature of the ground.

Some choice is to be made in regard to the ſituation, in the manner, and courſe of the work. When a land lies upon the deſcent of a hill, let it never be ploughed ſtrait up and down, but croſswiſe. This has a double advantage: for the horſes are not tired, as they would be with going ſtrait up and down, and the land alſo will fare a great deal the better.

Of laying Land in ridges. See Ridge.

A great article in the rendering of land

fertile, is the breaking and dividing it into ſmall particles, whether this be done mechanically by the plough, or by fermentation given to it by manures; that this breaking of the ſoil into ſmall particles is eſſential to the free growth of plants is very plain, becauſe it is from the ſmalleſt particles of this matter that they are nouriſhed, and the breaking of the land in this manner is the only method of giving the roots a free paſſage between them, in their ſearch of this nouriſhment.

On this depends the famous ſyſtem of Horſe-hoeing Huſbandry. But beſide theſe two articles, of liberty of ſpreading the roots, and a proper quantity of nouriſhment, there are two other, without which plants cannot thrive, theſe are, a due degree of heat and moiſture.

Corn, and the other common produce of our ploughed land, demand a moderate degree of each of theſe, and the farmer is to guide his practice throughout in ſuch manner, as to give them a ſupply without giving them abundance. It will be aſked, can the farmer cauſe ſunſhine, or can he call down rain? Neither: nor do we expect impoſſibilities of him; nothing is more eaſy than what we require him to do, and the effect ſhews that it will ſucceed.

But as he is to communicate to his crop all good, ſo far as he is able, ſo he is to defend it from all ill: and as we have ſhewn how he may give the advantage, it remains that we ſhew how he may prevent the hurt.

Now one of the greateſt misfortunes that can attend a crop is too much wet. This ſometimes happens from the particularity of a ſeaſon; but oftner from the nature of the land. When the firſt is the caſe, the farmer's care muſt be to find methods of carrying the wet off; when the latter, he muſt employ all his care to provide againſt it. Land that is too wet will never produce corn well, and to prevent the miſchief attending this condition of the ground, has been invented the practice of which we now treat, the laying land in ridges.

This is a particular ſort of tillage, and its effect is greater than thoſe ſeem to underſtand who employ it. They uſe it only to keep their lands from being too wet, but it has an effect in regard to the degree of heat, not leſs than with reſpect to that of moiſture.

We ſhall ſee, upon examining this practice and its effects, how well nature has taught people to uſe it. We ſee them in the moderate ſoils that are frequent in Buckinghamſhire, and elſewhere, frequently lay four ridges together: in Kent they often lay ſix, and the lower parts of Eſſex eight, and in Huntingdonſhire, upon their wet and ſtiff clays, they ſow all upon broad lands, raiſing the middle of the ridges in ſome places two foot and a half higher than the ſide furrows. This at once expoſes thoſe tough and clammy ſoils to the ſun better than any other method, and drains them of the abundant wet.

The chief deſign of laying land in ridges is draining of it, and making the corn grow properly dry: but we ſee that by a proper management it may be made to extend its benefits farther. In this caſe, of a clayey ſoil laid in ridges open to the eaſt and weſt, where the ſituation is ſuch as to allow it without other damage, the ſun acts in a double way upon the ſoil, not only giving it warmth, when the abundant cold moiſture is taken away, but by a gentle calcination of the ſurface, it reduces that ſuperficial part to a ſtate of greater perfection, and to a kind of manure for the reſt.

The natural defects of many lands, otherwiſe uſeful and good, are a too great degree of moiſture, and a defect of heat. The latter naturally ariſes from the former; for a quantity of water detained among clay, or any other tough earth, becomes cold, and chills the plants that are laid upon it. The great remedy, in this caſe, is the laying the land in ridges; and that the careful huſbandman may be ſure to know when this is required, as well as how to do it, we ſhall give him the following hints.

The two principal kinds of land, that are liable to be chilled by wet, are thoſe on hills, where there is a bed of clay under the mould; and thoſe in level grounds, which conſiſt of a very deep and very ſtiff ſoil.

The occaſion of the miſchief in theſe is very obvious, the rains fall upon this ground, and, ſoaking through the

mould, are detained by the clay.—— They cannot enter the clay, and therefore they ſpread themſelves among the mould above; and the mould below ſtopping it in its deſcent, and more water falling above, the whole approaches to the nature of a bog; the ground being ſoft, pappy, and raiſed above the natural level by the water ſpread among it.

When this is the caſe in a very great degree, no method of ploughing can be ſufficiently effectual to remedy it. In this caſe, trenches muſt be cut acroſs with a deſcent, to carry the water off. And they may be filled up with rough ſtones, and covered over with earth again, ſo that all may be wrought as a level ſurface: Reaſon points out this remedy, but it is often too expenſive; and ſuch lands, when too wet and too difficult of remedy, are to be neglected; we therefore have named theſe only to ſhew, that they are not to be attempted by ridging; for nothing diſheartens a huſbandman ſo much, as undertaking what he afterwards finds cannot be done.

When the wet is in a conſiderably large degree, it may be diſcharged by laying the land properly in ridges, tho' not where it is thus very abundant; therefore let the farmer firſt examine carefully, whether the ſtate of the ground will or will not admit a cure; if he thinks it will, this is the manner in which he is to ſet about it:

Let him plough the land in ridges, almoſt croſs-wiſe of the hill, but a little ſlanting; for if they be perfectly carried acroſs, or quite ſtrait down, they will neither way do. When they are thus carried croſs-wiſe, but a little diagonally, their parting furrows lying open, will each ſerve as a drain to the ridge next below it: for when the plough has made the bottom of theſe nearly horizontal furrows a few inches deeper than the ſurface of the clay, the water will naturally and ſecurely run to their ends, without riſing into the mould, provided no part of the furrows be lower than their ends.

Theſe parting furrows and their ridges ſhould always be made a little obliquely; and this obliquity, or ſlanting, ſhould be more or leſs, according to the form and declivity of the hill.

We are to conſider that there are two ways, in which water that falls upon an hill runs off. The one is on the ſurface, and the other is between the mould that makes the ſoil, and the clay that makes the bed under it.—— 'Tis this ſecond courſe, or the running of the water upon the bed of clay, and under the mould, that we are to conſider on theſe occaſions; for on that depends the damage we propoſe to rectify. This is the ſource of what we have directed, as to the diſpoſition of the ridges; and it will be found, on the moſt careful examination, that as only this method of ridging could keep that part of the ſoil dry, ſo there is no direction in which they could run, that will ſo well ſecure the advantage, as the carrying them with this ſlant croſs-wiſe of the hill.

In this caſe the conſideration of laying the ridges eaſt and weſt, muſt give way to this croſs direction, with reſpect to the deſcent of the hill. We have mentioned, under that head, that there were exceptions; this is the principal; and in this, as in all other caſes, the greater convenience is to be conſulted, and the leſſer is to give place to it.

The farmer who ſhall make himſelf perfect maſter of his buſineſs, will often find two things would be right, both of which together are impracticable: he muſt, in this caſe, content himſelf with taking the beſt.

The way of working on this occaſion is to plough the ridges in paces, without throwing any earth into the trenches. In this caſe, the ridges will be plain at the top; and the rain water will ſpeedily run downward to the next trench, and thence to the head land, and ſo out of the field.

Theſe are eaſy and plain directions, and the ſucceſs of them is certain; it not only is plain to reaſon, but is vouched by experience; and yet a great deal of land that might be ſaved by it, is left to produce little or nothing by the common treatment.

Wet land, that lies level, is the ſecond kind of land that is liable to be wet and cold, and that may be greatly mended by the tillage in ridges.—— Sometimes there are ſprings on the hills, that add to the quantity of water which they have from rains, and this makes the cure more difficult: in theſe deep, wet, and ſtiff ſoils that lie on a level,

level, the cauſe is always to be found in the water that falls by rain alone. But this will ſometimes put the land into as bad a condition as if there were ſprings in many places.

When a deep ſtiff ſoil lies flat, and is ploughed ſometimes one way, and ſometimes another by croſs ploughing, it will hold water a long time. By that misfortune the plough is kept out two or three weeks longer than if it were in round ridges. Sometimes its flatneſs keeps it from drying, till the ſeaſon of ploughing and ſowing too are loſt.

The farmers are backward in ploughing the hilly wet grounds in ridges, and more in this. They ſay it prevents the benefit of croſs ploughing, which they count as a great advantage, and they think they loſe a part of their ground by the open furrows, which they otherwiſe fill up with harrows. But theſe are miſtakes and prejudices, of which it becomes us to ſet the practical farmer right; for on ſuch notions, which he receives upon credit, without being at the pains of examining whether they be true or falſe, depend the greateſt part of his diſappointments and loſſes. Croſs ploughing is ſometimes a hurt as well as a benefit to land: this is certain, and any one who is accuſtomed to farming, and will examine what he from time to time ſees, inſtead of taking all things upon truſt, will find it ſo in experience. This, therefore, is an objection ariſing only from prejudice in favour of common practice, and common opinion: the other is entirely an error; for, inſtead of loſing any ground by ridges, it is poſſible to gain ſome. In the moſt ſimple and common practice, none is loſt; and managing wiſely and properly, much may be gained.

Ground is gained for the farmer's purpoſe, when its ſurface is increaſed, and is capable of bearing more corn; and this is plainly practicable in the ploughing in ridges. If in this cuſtom of ploughing, we allow two feet in ſixteen for an empty furrow, ſtill the difference of ſurface between the reſt as it lay flat, and as it is ploughed into ridges, is much greater in his favour, than this proportion is in loſs of quantity. All the ſurface thus raiſed in ridges, is capable of bearing corn, and therefore it is ſo much ground gained to the huſbandman.

It is certain, the ſurface of a field meaſures more in quantity when in ridges, than when flat; and it is equally certain, that all its ſurface, the empty furrows excepted, is capable of bearing corn. This is a ſhort ſtate of the caſe. Theſe empty furrows have been taken into the computation, and the difference is in favour of the land in ridges. No ſophiſtry can get the better of ſo plain a fact; and it is upon this fact, and the evident advantage that wet and cold lands receive from this kind of tillage, that we recommend to the farmer the tilling his ſtiff, cold, moiſt, and flat lands, in this method of ploughing in ridges.

PLUM-TREE, (*Prunus.*) The varieties of the fruit are,

White Primordian, or Jean Hative Plum.—A ſmalliſh, oblong, yellow Plum, with a white bloom; ripe the middle or end of July.

Morocco, or early black Damaſk Plum. A middle-ſized, round, blackiſh fruit, powdered with blue, is well flavoured, and diſcharges the ſtone; ripe end of July.

Little Damaſk Plum.—A ſmall, round, black, well-flavoured plum; ripe beginning of Auguſt.

Great Damaſk Violet Plum.—A moderately large, roundiſh-oval, dark-blue Plum, covered with a violet bloom, is of a rich juicy flavour, and quits the ſtone; ripe in Auguſt.

Queen Claudia Plum, ſometimes called Green-Gage.—A middle-ſized, round, yellowiſh-green Plum, having a firm deep-green pulp, of a fine rich flavour, and quits the ſtone; ripe in September.

Little Queen Claudia Plum.—A ſmall, round, whitiſh-yellow Plum, powdered with white, and parts from the ſtone; ripe end of Auguſt and beginning of September.

Green-Gage Plum.—A middle-ſized, roundiſh, green Plum, ſometimes purpliſh on the ſunny ſide, having a yellowiſh-green firm pulp, of a moſt delicious rich flavour, but does not diſcharge the ſtone freely; is one of our moſt valuable plums, and the tree a great bearer; ripe the end of Auguſt and beginning of September.

Varities.] There are ſeveral varieties of greeniſh Plums, that go by the name

of Green-Gages, that are of inferior quality.

Blue Gage Plum.——A middle-ſize, roundiſh, blueiſh Plum, of a rich flavour; ripe beginning or middle of September.

Orleans Plum.——A middle-ſized, round, pale-red Plum, often of a whitiſh-green colour on the ſide away from the ſun; is of but a middling flavour, and quits the ſtone clean. The tree is of ſpreading growth, a remarkably great bearer, and very profitable for common uſe, and for thoſe who ſupply the markets; ripe end of Auguſt and beginning of September.

Drap d'Or, or Cloth of Gold Plum.—A middle-ſized, roundiſh, bright-yellow Plum, ſpotted with red, of an excellent vinous flavour, and adheres to the ſtone; ripe beginning or middle of September.

Black Perdigron Plum.——A middle-ſized, oval, dark-coloured Plum, powdered with a violet bloom; is of a fine rich flavour; ripe middle or end of Auguſt.

Blue Perdigron Plum.—A large, roundiſh, blueiſh-coloured Plum, replete with a delicious juice; ripe end of Auguſt.

White Perdigron Plum.——A middle-ſized, oblong, whitiſh-yellow fruit, covered with a white bloom; is firm, juicy, rich, and quits the ſtone; ripe end of Auguſt and beginning of September.

Roche Courbon, or Red Diaper Plum.—A middle-ſize, round, fine red Plum, powdered with a violet bloom, is high flavoured, and adheres to the ſtone; ripe end of Auguſt.

Red Imperial Plum.—A large, oblong-oval, flattiſh, pale-red Plum, covered with a whitiſh bloom; is of but a middling reliſh, and parts from the ſtone; ripe middle of September.

White Bonum Magnum, Mogul or Egg Plum.—A remarkably large, oblong, egg-ſhaped, whitiſh yellow Plum, powdered with a white bloom, having a firm pulp that cleaves to the ſtone; more eſteemed for culinary uſe, than eating raw: the tree ſhoots ſtrong, with very large leaves; is a great bearer, and the fruit is the largeſt of the plum kind; ripe beginning or middle of September.

Red Bonum Magnum, ſometimes called the Great Imperial Plum.—A very large oblong, deep-red Plum; not of a rich flavour, but is excellent for preſerving and culinary purpoſes; ripe beginning or middle of September.

Fotheringham Plum.—A large, oblong, fine-red plum, having a fine rich pulp, that quits the ſtone; ripe end of Auguſt and beginning of September.

Brignole Plum.—A largiſh, oval, yellowiſh plum, tinged with red next the ſun, having a firm, dry, rich pulp, is in much eſtimation for ſweetmeats; ripe in September.

Le Royal Plum.—A large, roundiſh, light-red, finely-powdered plum, having a juicy ſugary pulp, that cleaves to the ſtone; ripe end of Auguſt and in September.

Cheſton Plum.—A middle-ſized, oval, blackiſh-blue Plum, powdered with a violet bloom; ripe towards the middle of September.

Wentworth Plum.—A large, oval, yellowiſh plum, of an acid reliſh, and ſeparates from the ſtone; is a good culinary fruit; ripe in September.

Mirabelle Plum.—A ſmall, round, greeniſh-yellow plum, having a rich pulp, that diſcharges the ſtone, and the tree a great bearer; ripe end of Auguſt.

Apricot Plum.—A large, round, yellowiſh plum, having a firm, dry, ſweet pulp, that ſeparates from the ſtone; ripe beginning or middle of September.

St. Catharine Plum.—A large, oblong, oval, yellowiſh-amber-coloured plum, powdered with a white bloom, having a rich juicy agreeable pulp, adhering cloſe to the ſtone: ripe end of September.

Imperatrice Plum.——A middle-ſized, roundiſh, dark-red, finely-powdered plum, of an agreeable flavour, the pulp adhering to the ſtone; ripe beginning of October.

Little Green Damaſk Plum.—A ſmall, round, greeniſh Plum, powdered with a whitiſh bloom, having a green very agreeable pulp, adhering to the ſtone; ripe middle or end of September.

Pear Plum.—A moderate-ſize, oval, whitiſh-yellow plum, of an inferior flavour, eſteemed principally for preſerving; ripe late in September.

Muſcle

Muſcle Plum.—A ſmalliſh, oblong, flat, dark-red plum, but of an indifferent reliſh; ripe in September.

Damaſcene Plum.—A ſmall, roundiſh, dark-blue plum, of a tolerably agreeable acid reliſh, both for eating and culinary purpoſes, and the tree a great bearer; ripe in September.

St. Julian Plum.—A ſmall, round, dark-violet-coloured fruit, covered with a mealy powder, but has little reliſh; ripe end of September.

Cherry Plum.—A very ſmall, round, cherry-ſhaped red plum, valued chiefly as a curioſity; and the tree is often planted among flowering ſhrubs, for the ſake of its beautiful bloom in ſpring, and its cherry-like fruit exhibit a pretty variety in ſummer; though by its flowering very early, the bloom is often cut off, and ſeldom ſucceeded by much fruit.

Thus far is principally all the moſt noted varieties of this fruit cultivated in the Engliſh gardens, and in the nurſeries for ſale; though there are numerous other varieties, particularly of the common ſort, growing in the orchards and hedges of farmers, &c. in different parts of the country; all the ſorts being varieties of one ſpecies, firſt obtained from ſeed, and the approved ſorts of them have been multiplied and continued by budding and grafting.

But beſides the above varieties of the fruit, there are alſo the following for ornamental plantations.

Double-bloſſom Plum-tree——Gold ſtriped-leaved—Silver-ſtriped-leaved—and the ſtoneleſs plum.

The two following ſpecies. *Bullace-tree* and *Sloe-buſh*, grow wild in hedges, but are ſometimes cultivated both for variety and uſe.

The general propagation of Plum-trees is, by grafting and budding, and may alſo be increaſed occaſionally by layers.

By grafting and budding.—This is performed upon ſtocks of any ſorts of the plum-kind, raiſed from the ſtones, ſowed in autumn in beds of good earth; about two inches deep, and when the plants are a year old, they being planted out in nurſery rows two feet and a half aſunder, and having from one to two or three years growth, they will be in fit order to graft or bud with the deſired ſorts, which is performed in the uſual way, either low in the ſtock for dwarfs, or at ſeveral feet height for ſtandards. Obſerving, that when the firſt ſhoots from the graft or bud are one year old, thoſe of the trees deſigned as dwarfs for walls, &c. ſhould be headed down within five or ſix inches of the bottom, more particularly of the budded trees, in order to force out laterals from the lower eyes, ſo as to furniſh a proper ſet of branches, proceeding regularly from the bottom of the tree, to cover every part of the wall and eſpalier. But as to ſtandards, their firſt ſhoots may either be ſuffered to run and branch in their own way, or headed to a few eyes, if it ſhall ſeem neceſſary, to force out lower laterals to give the head a more regular ſpreading formation; afterwards, let them all take their own growth.

When the trees thus raiſed by grafting or budding, are from one to two or three years old, they are of a proper ſize for final tranſplanting into the garden, &c. though trees of ſix or eight years old may be ſafely tranſplanted; remarking however, the younger they are planted where they are to remain, the ſooner and more firmly they will eſtabliſh themſelves, and form for bearing.

By layers.——This is performed on the young wood, any time from November till March, chuſing the laſt ſummer's ſhoots, and lay them by ſlit-laying; in one year they will be rooted; they muſt then be ſeparated, and planted in nurſery-rows, and trained either for dwarfs or ſtandards, as may be required.

The double bloſſom plum, the two ſtriped varieties, and ſtoneleſs kind, are all propagated by budding or grafting, upon any kinds of plum-ſtocks, either for dwarfs, or half or full ſtandards.

And the bullace-tree and ſloe-buſh or black-thorn, are propagated by ſowing the berries or ſtones an inch deep in a bed of common earth in autumn; and the ſloe-tree alſo abundantly by ſuckers from the root.

Cocoa PLUM, *or American* PLUM, *(Chryſobalanus.)* There are two ſpecies; 1. with oval indented leaves, flowers growing in cluſters, and a ſhrubby ſtalk;—2. with decompounded leaves, whoſe leaves are oval and entire.—— They are both natives of the Weſt-India iſlands,

iſlands, and the warmer parts of America, and will not thrive in England, unleſs preſerved in ſtoves. They are propagated by ſeeds, which muſt be procured from their native country, and ſown in the ſpring.

INDIAN DATE PLUM. *See* DATE Plum-tree.

POA GRASS.—Meadow graſs, or that common ſpecies of graſs, which principally forms the green covering of our fields, &c.

POCKET, A large ſort of bag, in which wool or hops are packed up, in order to be ſent from one part of the kingdom to the other.

POCKWOOD. *See* GUAICUM.

POD, A term uſed to expreſs a pericarpium, conſiſting of two valves, which open from the baſe to the point, and are ſeparated by a membraneous partition, from which the ſeeds hang by a kind of minute ſtalk. *Mart.*

POISON TREE, (Toxicodendron.) There are ſeveral ſpecies of this plant growing in moſt parts of North America.——Theſe plants are preſerved by the curious in botany, for the ſake of variety; but as there is little beauty in them, there are not many of the ſorts cultivated in England. The wood of theſe trees, when burnt, emits a noxious fume, which will ſuffocate animals when they are ſhut up in a room where it is burnt; an inſtance of this is mentioned in the Philoſophical Tranſactions by Dr. William Sherard, which was communicated to him in a letter from New England, by Mr. Moore, in which he mentions ſome people who had cut ſome of this wood for fuel, which they were burning, and in a ſhort time they loſt the uſe of their limbs, and became ſtupid; ſo that if a neighbour had not accidentally opened the door, and ſeen them in that condition, it is generally believed they would ſoon have periſhed. This ſhould caution people from making uſe of this wood for ſuch purpoſe.

When a perſon is poiſoned by handling this wood, in a few hours he feels an itching pain, which provokes a ſcratching, which is followed by an inflammation and ſwelling. Sometimes a perſon has had his legs poiſoned, which have run with water. Some of the inhabitants of America affirm, they can diſtinguiſh this wood by the touch in the dark, from its extreme coldneſs, which is like ice; but what is mentioned of this poiſonous quality is moſt applicable to a ſort like the aſh.

The juice of the tree is milky, when it firſt iſſues out of the wounded part; but ſoon after it is expoſed to the air, it turns black, and has a very ſtrong fœtid ſcent, and is corroding; on cutting off a ſmall branch from one of theſe ſhrubs, the blade of the knife has been changed black in a moment's time, ſo far as the juice had ſpread over it, which could not be got off without grinding the knife.

POISON ASH, a ſpecies of the poiſon-tree.

POISON OAK, a ſpecies of the poiſon-tree.

POISON BUSH. *See* SPURGE.

POKE, a ſack or bag.

Hop POLES, the upright poles, or pieces of wood, round which they bind, twiſt, and ſupport themſelves.

POLLARD, a tree that has been frequently polled or lopped, and its top taken off.——Pollards are inferior to coppice trees, in the quantity of wood they yield, and in its value; for the coppice wood is fit for many purpoſes that the ſhrowdings of the pollards can never anſwer, and therefore brings a better price; but on the other hand, pollards are maintained at a ſmaller expence, indeed it may almoſt be ſaid at none at all; for they require no fences; they take up no quantity of ground; and they are in their ſhoots above the reach of cattle.

The moſt frequent and moſt profitable trees for pollards, are, the willow for watery places, the aſh for hedge rows, and the oak for commons. But each of theſe ſituations will ſupport ſeveral others to advantage; and there is ſcarce any tree that may not be brought to a pollard at the owner's pleaſure.

In general, the huſbandman ſhould ſhrowd ſuch trees as are not fit for timber; or any from which he deſires to have a preſent advantage, or which he intends ſhall ſupply his family, or the market, with fuel quickly and readily: for there is no growth ſo ſpeedy as that of the tree which is ſhrowded.

Trees intended for ſhrowding may be raiſed in many places, where it would

would not be worth while to have others, becauſe of the injury they would do the ground: for, as to ſhrowded trees, the farmers may have the benefit of grazing under them, while the tops are growing, ſo that little produce of the ground, where that is of any conſiderable value, is loſt by their growth: and when their heads are ſo large that they injure the growth of the graſs, they make amends another way, for they then afford ſhelter for the cattle, the neceſſity of which is ſufficiently known to every grazier.

POLE-EVIL, An abſceſs near the poll of a horſe, formed in the ſinuſes between the noll bone, and the uppermoſt vertebræ of the neck.

If it proceeds from blows, bruiſes, or any external violence, at firſt bathe the ſwelling often with hot vinegar; and if the hair be fretted off with an oozing through the ſkin, make uſe of two parts of vinegar, and one of ſpirit of wine; but if there be an itching with heat and inflammation, the ſafeſt way is to bleed, and apply poultices with bread, milk, and elder flowers: this method, with the aſſiſtance of phyſic, will frequently diſperſe the ſwelling, and prevent this evil.

But when the tumour is critical, and has all the ſigns of matter, the beſt method then is to forward it by applying the ripening poultices already taken notice of, till it come to maturity, and burſt of itſelf; or if opened with a knife, great care ſhould be taken to avoid the tendinous ligament, that runs along the neck under the mane: when matter is on both ſides, the opening muſt be made on each ſide, and the ligament remain undivided.

If the matter flows in great quantities, reſembles melted glue, and is of an oily conſiſtence, it will require a ſecond inciſion, eſpecially if any cavities are diſcovered by the finger or probe; theſe ſhould be opened by the knife, the orifices made depending, and the wound dreſſed with the common digeſtive of turpentine, honey, and tincture of myrrh, and after digeſtion with the precipitate ointment; or waſh the ſore with the following, made hot, and fill up the cavity with tow ſoaked in it.

Take vinegar, or ſpirit of wine, half a pint, white vitriol diſſolved in ſpring water, half an ounce, tincture of myrrh, four ounces.

This may be made ſharper by adding more vitriol; but if the fleſh is very luxuriant, it ſhould firſt be pared down with a knife before the application; with this waſh alone, Mr. Gibſon has cured this diſorder without any other formality of dreſſing, waſhing with it twice a day, and laying over the part a quantity of tow ſoaked in vinegar, and the white of eggs beat together. This laſt application will ſerve inſtead of a bandage, as it will adhere cloſe to the pole, and come off eaſy when there is occaſion to dreſs. Some waſh with the phagedenic water, and then fill up the abſceſs with looſe doſſils of tow ſoaked in Ægyptiacum and oil of turpentine made hot, and continue this method till the cure is effected.

But the moſt compendious method of cure, is found by obſervation to be by ſcalding, as the farmers term it, and is thus proſecuted when the ſore is foul, of a bad diſpoſition, and attended with a profuſion of matter.

Take corroſive ſublimate, verdigreaſe in fine powder, and Roman vitriol, of each two drams; green copperas half an ounce; honey or Ægyptiacum two ounces, oil of turpentine and train oil, of each eight ounces; rectified ſpirit of wine four ounces: mix together in a bottle.

Some make their ſcalding mixture milder, uſing red precipitate inſtead of the ſublimate; and white vitriol inſtead of blue; the following has been ſucceſsfully uſed for this purpoſe, viz. half an ounce of verdigreaſe, half a pint of train oil, four ounces of oil of turpentine, and two of oil of vitriol.

The manner of ſcalding is, firſt to clean the abſceſs well with a piece of ſponge dipped in vinegar; then put a ſufficient quantity of the mixture in a ladle with a ſpout, and when it is made ſcalding hot, pour it into the abſceſs, and cloſe the lips together with one or more ſtitches. This is to remain in ſeveral days, and if good matter appears, and not in an over-great quantity, it will do well without any other dreſſing, but bathing with ſpirit of wine; if the matter flows in great abundance

abundance, and of a thin conſiſtence, it muſt be ſcalded again, and repeated till the matter leſſens and thickens.

Theſe liquid corroſive dreſſings agree well with horſes, whoſe fibres are ſtiff and rigid, and whoſe juices are oily and viſcid; in this caſe they contract the veſſels of the tendons on the hind part of the head and upper part of the neck, which are continually ſpewing out a matter or ichor that can hardly be digeſted, or the profuſion abated without ſuch applications as theſe.

POLEY, *(Policum.)* There are ſeveral ſpecies of this plant, natives of France, and the warmer parts of Europe; and from thence brought into the Engliſh gardens, and are propagated by ſetts, cuttings, or ſlips.

POLYPODY, *(Polypodium.)* Polypody is a capillary plant, growing upon old walls, the trunks of decayed trees, &c. That found upon the oak is generally preferred, though not ſenſibly different from the others. The roots are long and ſlender, of a reddiſh brown colour on the outſide, greeniſh within, full of ſmall tubercles, which are reſembled to the feet of an inſect; whence the name of the plant: the taſte of theſe roots is ſweetiſh and nauſeous.

Polypody has been employed in medicine for many ages; nevertheleſs its virtues remain as yet to be determined. The ancients held it to be a powerful purger of melancholic humours; by degrees, it came to be looked upon as an evacuator of all humours in general; at length, it was ſuppoſed only to gently looſen the belly; and afterwards even this quality was denied it: ſucceeding phyſicians declared it to be aſtringent; of this number is Boerhaave, who eſteems it moderately ſyptic and antiſcorbutic. For our own part, we have had no direct experience of it, nor is it employed in practice; it is probable that (as Juncker ſuppoſes) the freſh root may looſen the belly, and that it has not this effect when dry.

POLYANTHUS, *(Polyantha.)* The ſeveral ſorts of Polyanthuſes are produced by ſowing of ſeeds, which ſhould be ſaved from ſuch flowers as have large upright ſtems, producing many flowers upon a ſtalk, which are large, beautifully ſtriped, open, flat, and not pin-eyed. From the ſeeds of ſuch flowers, there is room to hope for a great variety of good ſorts, but there ſhould be no ordinary flowers ſtand near them, leſt by the mixing of their farina the ſeeds ſhould be degenerated.

Theſe ſeeds ſhould be ſown in boxes filled with light rich earth in December, being very careful not to bury the ſeed too deep, for if it be only ſlightly covered with earth, it will be ſufficient. Theſe boxes ſhould be placed where they may have the benefit of the morning ſun until ten of the clock, but muſt by no means be expoſed to the heat of the day, eſpecially when the plants begin to appear, for at that time one whole day's ſun will entirely deſtroy them. In the ſpring, if the ſeaſon ſhould prove dry, you muſt often refreſh them with water, and as the heat encreaſes, you ſhould remove the boxes more in the ſhade, for the heat is very injurious to them.

By the end of May, theſe plants will be ſtrong enough to plant out, at which time you ſhould prepare ſome ſhady borders, which ſhould be made rich with neats dung, upon which you muſt ſet the plants about four inches aſunder every way, obſerving to water them until they have taken root; after which they will require no farther care, but to keep them clear from weeds, until the latter end of Auguſt following, when you ſhould prepare ſome borders, which are expoſed to the eaſt, with good light rich earth, into which you muſt tranſplant your polyanthuſes, placing them ſix inches aſunder equally in rows, obſerving, if the ſeaſon prove dry, to water them until they have taken root. In theſe borders your plants will flower the ſucceeding ſpring, at which time you muſt obſerve to mark ſuch of them as are fine to preſerve, and the reſt may be tranſplanted into wilderneſſes, and other ſhady places in the garden, where, although they are not very valuable flowers, they will afford an agreeable variety.

Thoſe which you intend to preſerve may be removed ſoon after they have done flowering, (provided you do not intend to ſave ſeeds from them) and may be then tranſplanted into a freſh border of the like rich earth, allowing them the ſame diſtance as before, obſerving

ſerving alſo to water them, until they have taken root; after which they will require no farther care, but only to keep them clean from weeds, and the following ſpring they will produce ſtrong flowers, as their roots will be then in full vigour; ſo that, if the kinds are good, they will be little inferior to a ſhew of Auriculas.

Theſe roots ſhould be conſtantly removed and parted every year, and the earth of the border changed, otherwiſe they will degenerate, and loſe the greateſt part of their beauty.

If you intend to ſave ſeeds, which is the method to obtain a great variety, you muſt mark ſuch of them, which have good properties. Theſe ſhould be, if poſſible, ſeparated from all ordinary flowers, for if they ſtand ſurrounded with plain-coloured flowers, they will impregnate each other, whereby the ſeeds of the valuable flowers will not be near ſo good, as if the plants had been in a ſeparate border, where no ordinary flowers grew; therefore the beſt way is to take out the roots of ſuch as you do not eſteem, as ſoon as the flowers open, and plant them in another place, that there may be none left in the border but ſuch as you would chuſe for ſeeds.

The flowers of theſe ſhould not be gathered, except ſuch as are produced ſingly upon pedicles, leaving all ſuch as grow in large bunches; and if the ſeaſon ſhould prove dry, you muſt now and then refreſh them with water, which will cauſe their ſeeds to be larger, and in greater quantity, than if they were entirely neglected. In June the ſeed will be ripe, which may be eaſily known by the pods changing brown, and opening; ſo that you ſhould at that time look over the plants three times a week, gathering each time ſuch of the ſeed-veſſels as are ripe, which ſhould be laid upon a paper to dry, and may then be put up until the ſeaſon of ſowing.

As the plants which ariſe from ſeeds, generally flower much better than offſets, thoſe who would have theſe flowers in perfection ſhould annually ſow their ſeeds.

POMEGRANATE (*Punica.*) This tree is a native of Spain, Italy, Portugal, &c. but when planted againſt a warm wall, will often produce fruit in England. There are ſeveral varieties, and may be propagated by layers.

POND, a reſervoir or receptacle for collecting and preſerving water.

The neceſſity of water, in all paſtures, is ſelf-evident; as cattle cannot live without it, and the driving of them far for it is known to be prejudicial to their health, in hot weather, beſides being attended with great trouble, and a conſiderable loſs of time. This is ſo ſenſibly felt in many parts of England, that people are obliged to dig wells, even to ſuch a depth as, frequently, to require the aſſiſtance of a horſe to draw up the water. The means of rendering it eaſily come at muſt therefore inhance the value of the land where it can be ſo procured, and it is of very eſſential conſequence to the huſbandman.

Where the ſurface of the ground is ſand or gravel, there ſeldom is occaſion to dig deep for water; becauſe ſuch ſoils generally lie upon marle, or ſome other rich earth, through which the water cannot deſcend. Beds of clay are moſt commonly thicker than thoſe of ſand or gravel; and chalk is, too often, the thickeſt of all. But wherever water is wanting, the farmer ſhould bore through the incumbent earth, if he intends to fit his land for paſture: and if he finds the expence of obtaining it too great, his beſt way will be to convert the ground, ſo circumſtanced, into arable, or to plant it with timber-trees ſuited to the nature of the ſoil.

Wherever water ſtagnates in a ſandy or gravelly ſoil, the huſbandman ſees at once at what depth is the ſurface of the earth which retains it. But in other ſoils, and when this does not happen, Palladius, and the authors of the *Maiſon Ruſtique*, give the following directions how to ſeek for water, with the greateſt probability of ſucceſs.

Where ruſhes, reeds, flags, willows, or other aquatic plants grow ſpontaneouſly, or where frogs are obſerved to lie ſquatted down cloſe to the ground, in order to receive its moiſture, there generally is water underneath. Perſons who make it their buſineſs to find out ſprings for fountains, caſcades, &c. look upon it as an infallible ſign of ſubterranean water, when they ſee a vapour ariſe frequently from the ſame

ſpot of ground. Others aſſure, that wherever ſwarms of little flies are ſeen conſtantly flying in the ſame place, and near to the ground, in the morning, after ſun-riſe, there certainly is water under that ſpot. Again, where water is wanted on land apparently dry, let a man, before ſun-riſe, lie down flat on his belly, reſting his chin upon his fiſt placed cloſe to the ground, that his view may be directed quite horizontally, and not riſe too high, and in that ſituation let him look ſtedfaſtly toward the eaſt. If he then ſees a tremulous vapour ariſe from any particular ſpot, let him mark the place, by noticing ſome neighbouring tree, ſhrub, or other indication, and he will find water underneath it. But this experiment is to be made only on ground whoſe ſurface is dry; becauſe other exhalations, from a damp ſurface, would be apt, in this caſe, to miſlead the enquirer.

Another way is thus: Dig a hole three feet wide, and at leaſt five feet deep, and place at the bottom of it, when the ſun is about to ſet, a pan, or baſon, rubbed with oil on the inſide: let the bottom of this veſſel be uppermoſt; cover it with dry hay, fern, or ruſhes, and over that with earth; and if any drops of water are found ſtanding on its inſide the next day, a ſpring is probably not far off. Or, put a new, unbaked, but well dried, earthen veſſel into ſuch a hole, and cover it as before; and if there be water in that place, this veſſel will be found ſoft and wet the next day. Likewiſe, if wool be left all night in a trench of this kind, and water can be ſqueezed out of it the next day, little doubt remains but that plenty of water may be met with there.

The month of Auguſt is generally looked upon as the moſt proper time to ſearch for water; becauſe, as the heat of the preceding ſummer will have warmed the earth to a conſiderable depth, any ſteam ariſing from water reſting on an impervious ſoil underneath, and particularly in hollows on the ſurface of that impervious ſoil, will then be moſt exhaled by this warmth. Now it is this ſteam, or vapour, which produces the before-mentioned ſigns.

By whatever method water is found, the means of coming eaſily at it are the next conſideration. If it be on a plain, there is no other way than digging a well. In doing this, the ſubſtance under the ſand or light ſoil muſt be dug into, to form a reſervoir of water for occaſional wants; and this reſervoir ſhould be made deep and large, in proportion to the quantity wanted. If there were no ſuch reſervoir, the water, after having riſen a little above the impervious body underneath, would glide along its ſurface, as uſual, and very little of it could then be obtained, either by pumps, buckets, or any other way employed to raiſe it. If the well is made in a ſloping ground, and the declivity is ſufficient to give it an horizontal vent, it will be worth the huſbandman's while to dig ſuch a paſſage, and, by means of pipes, or any other conveyance, to carry the water acroſs the light ſoil, through which it would otherwiſe ſink. The greateſt quantity of water will be obtained in this manner, becauſe there will then be a continual ſtream.

If the ſoil is very deep, and its ſurface has inequalities in which rain-water runs in any quantity; this may be collected in ponds made in the loweſt parts of ſuch grounds.

If a body of clay is found near the ſurface, it is worth the farmer's while to bore, that he may know at what depth a bed of ſand or gravel may be met with, for he will be ſure to find plenty of water in this laſt. If this be in a declivity, he need only cut an horizontal paſſage, and the water will flow ſo freely as even to double the value of his land.

Here again the farmer needs not ever to be at a loſs, becauſe it cannot be very difficult to make a pond in a clayey ſoil, which is, of itſelf, retentive of water. But it may, perhaps, be adviſeable, even in this, to cover the bottom of the pond with a coat of gravel, in order to prevent its being poached by cattle, whoſe feet would otherwiſe be apt to ſink deep into the clay.—— Some farmers judiciouſly pave the declivity by which the cattle enter into the pond, and this renders it much more laſting than it would otherwiſe be, and preſerves the water clean.

When ponds are made in a looſe ſoil, much more care is neceſſary. The bottom and ſides there muſt be covered with a thick coat of the toughеſt clay,

from

from a foot to two feet thick, well rammed down. Some have added hair and loam to the outer part of this covering, with a view of rendering it leſs liable to chap: but a thick coat of gravel is more neceſſary here, that the feet of the cattle may not pierce through the clay. Perhaps the expence of paving the whole inſide of a pond might, in the end, be money well laid out.

The greateſt difficulty of finding water is in chalky ſoils, becauſe theſe are not, of themſelves, very retentive of it, and generally lie in ſuch thick beds, that it is expenſive to dig through them. However, it ſhould be tried; and if ſand or gravel be found underneath, water may be depended on.—Even here, ponds are eaſily made, by digging into the chalk, and lining them with a coat of clay, as before directed. If there be a ſupply of proper manure, ſuch as clay or marle, this ſituation is well adapted to grain, which loves to ſtand dry; and as this kind of ground produces more forward crops than clayey or ſtrong ſoils, it may be ſowed early with corn, which will not, in that caſe, be ſo apt to be parched up as graſs is, by the ſummer's drought. If a good ſoil can be made here, a foot deep, it will yield plenty of various ſorts of paſture, either roots or graſſes, as the farmer ſhall judge moſt proper: or it may be planted with different kinds of timber-trees.

POPLAR-TREE, (*Populus*.) A genus of trees, of which botaniſts enumerate four ſpecies, viz. the common white poplar, with large leaves; the common white poplar, with ſmaller leaves; the common black poplar, and the poplar with trembling leaves, called the aſpen-tree. The poplar, whether black or white, may be eaſily propagated, either by layers, cuttings, or ſuckers, of which the white kind always produces a great many from the roots. The beſt ſeaſon for the tranſplanting theſe ſuckers is in October, when the leaves begin to decay; and they ſhould be removed into a nurſery for two or three years, at the end of which time they will have got ſtrength enough to be tranſplanted into the places where they are to remain.

When they are to be propagated by cuttings, it is beſt to do that in February, cutting off large truncheons of eight or ten feet long; which, being thruſt down a foot deep in the ground, will take root very quickly, and, if the ſoil be moiſt, will grow to a conſiderable ſize in a few years.

The black poplar is not ſo eaſily raiſed from theſe large truncheons, but ſhould be planted in cuttings, of about a foot and a half long, planting them a foot deep in the ground. This will grow on almoſt any ſoil, but does much better on a moiſt one than on any other. They are the fitteſt of all trees for raiſing a ſhade quickly, as they will grow fourteen feet in height ſometimes in one ſeaſon, and in four or five years will be large trees.

A conſiderable advantage may be obtained by planting theſe trees upon moiſt boggy ſoils, where few other trees will thrive: many ſuch places there are in England, which do not, at preſent, bring in much money to their owners; whereas, if they were planted with theſe trees, they would, in a very few years, over-purchaſe the ground, clear of all expence: but there are many perſons in England, who think nothing except corn worth cultivating; or, if they plant timber, it muſt be oak, aſh, or elm; and, if their land be not proper for either of theſe, it is deemed little worth; whereas, if the nature of the ſoil were examined, and proper ſorts of plants adapted to it, there might be a very great advantage made of ſeveral large tracts of lands, which at this time lie neglected.

The wood of theſe trees, eſpecially of the white, is very good to lay for floors, where it will laſt many years; and, for its exceeding whiteneſs, is, by many perſons, preferred to oak; but, being of a ſoft contexture, is very ſubject to take the impreſſion of nails, &c. which renders it leſs proper for this purpoſe: it is alſo very proper for wainſcotting of rooms, being leſs ſubject to ſwell or ſhrink, than moſt other ſorts of wood: but for turnery-ware, there is no wood equal to this for its exceeding whiteneſs, ſo that trays, bowls, and many other utenſils, are made of it; and the bellows-makers prefer it for their uſe; as do alſo the ſhoemakers, not only for heels, but

alſo for the ſoles of ſhoes: it is alſo very good to make light carts; the poles are very proper to ſupport vines, hops, &c: and the lopping will afford good fuel, which, in many countries, is much wanted.

POPPY, the name of a plant, of which, ſeveral ſpecies are cultivated in gardens for the beauty of the flowers. They are all eaſily propagated by ſowing the ſeeds in autumn. When the young plants come up, they are to be cleared from weeds, and thinned to a proper diſtance by pulling ſome up, where they ſtand too thick; for they never thrive well, if they are to be tranſplanted. They are to be left, according to their ſizes, at ſix, eight, or ten inches diſtance.

They are very ſhowy flowers, and make a ſplendid appearance in gardens, but they are but of a ſhort duration, and are of an offenſive ſmell, which makes them leſs valued at preſent than they have been.

Some ſow theſe plants in ſpring, but it is not ſo well; becauſe they then have not time to get ſtrength before autumn, when they are to flower; and, for that reaſon, thoſe ſown in ſpring uſually flower weakly.

The heads and ſtalks of theſe plants contain a milky juice; which may be collected in conſiderable quantity, by lightly wounding them when almoſt ripe: this juice, expoſed for a few days to the air, thickens into a ſtiff tenacious maſs, agreeing in quality with the opium brought from abroad. The juices of both the poppies appear to be ſimilar to one another; the only difference is in the quantity afforded, which is generally in proportion to the ſize of the plants: the larger or white poppy, is the ſort cultivated by the preparers of opium in the eaſtern countries, and for medicinal uſes in this.

Poppy heads, boiled in water, impart to the menſtruum their narcotic juice, together with the other juices, which they have in common with vegetable matters in general. The liquor ſtrongly preſſed out, ſuffered to ſettle, clarified with whites of eggs, and evaporated to a due conſiſtence, yields about one-fifth or one ſixth the weight of the heads, of extract. This poſſeſſes the virtues of opium; but requires to be given in double its doſe to anſwer the ſame intention, which it is ſaid to perform without occaſioning a nauſea and giddineſs, the uſual conſequences of the other. A ſtrong decoction of the heads, mixed with as much ſugar as is ſufficient to reduce it into the conſiſtence of a ſyrup, becomes fit for keeping in a liquid form; and is the only officinal preparation of the poppy. Both theſe preparations are very uſeful ones, though liable to variation in point of ſtrength: nor does this inconvenience ſeem avoidable by any care in the preſcriber, or the operator; ſince the poppy heads themſelves (according to the degree of maturity, and the ſoil and ſeaſon of which they are the produce) contain different proportions of the narcotic matter to the other juices of the plant; as has been obſerved in the Pharmacopœia reformata.

The ſeeds of the poppy are by many reckoned ſoporific; Juncker ſays, they have the ſame quality with thoſe of henbane, and Herman looks upon them as a good ſubſtitute to opium; miſled probably by an obſervation which holds in many plants, that the ſeeds are more efficacious than the veſſels in which they are contained.

The ſeeds of the poppy have nothing of the narcotic juice which is lodged in their covering, and in the ſtalks; an oil expreſſed from them has been uſed for the ſame purpoſes as oil olive, and the ſeeds themſelves taken as food: their taſte is ſweetiſh and farinaceous.

Red POPPY *or Red-Weed.* The common wild red poppy is one of the moſt miſchievous weeds the farmers are plagued with among their corn, and it is the moſt difficult to thoroughly deſtroy of almoſt any other. Its ſeed will lie a long time in land unploughed, without ever ſhooting; but they will be ſure to grow with every crop of corn. Mr. Tull gives an inſtance of the ſeeds of this plant being buried four and twenty years in a field of ſainfoin, and at the end of that time, the land being ploughed for wheat, they all grew up among the corn, though they had lain dormant ſo long before.

The flowers of this plant yield upon expreſſion a deep red juice, and impart the ſame colour by infuſion to aqueous liquors. A ſyrup of them is kept in the

the ſhops; this is valued chiefly for its colour; though ſome expect from it a lightly anodyne virtue.

Horned POPPY. Celandine.

Prickly POPPY. [*Argemone.*] Infernal Fig.

Spatling POPPY. See *Berry-bearing* CHICKWEED.

Wild POPPY. See *Red* POPPY.

POTATOES. [*Lycoperſicon.*] The name of a well-known plant, the roots of which make a very nouriſhing food.

Mr. Houghton deſcribes the potatoe to be a bacciferous herb, with eſculent roots, bearing winged leaves and a belled flower, and ſays, that, according to his information, which is allowed to be very right in this reſpect, it was firſt brought from Virginia, by Sir Walter Raleigh, who, ſtopping at Ireland, about the year 1623, gave away a number of theſe roots, which were planted there, and multiplied ſo exceedingly, that, in the wars which happened afterwards in that country, when all the corn above ground was deſtroyed, potatoes became the chief ſupport of the people; for the ſoldiers, unleſs they had dug up all the ground where they grew, and almoſt ſifted it, could not have extirpated them. The Philoſophical Tranſactions obſerve likewiſe, that the Iriſh were relieved from their laſt ſevere famine, which laſted two years, during which all their corn failed, merely by the help of this root. From Ireland it was brought to Lancaſhire, now famous for its potatoes; and the culture of this plant has, within theſe laſt thirty years, been extended to almoſt every part of England. The rich, who, at firſt, deemed them fit for none but the meaner ſort of people, now eſteem them ſo much, that Mr. Miller thinks the quantity of them which is cultivated around London only, exceeds that of any other part of Europe.

The red-rooted potatoes have purpliſh flowers, and the white-rooted (for Mr. Miller diſtinguiſhes only theſe two general varieties) bear white flowers.

The potatoe ſeldom perfects its ſeeds in England; and if it did, the raiſing of it from them would be much more tedious and uncertain than propagating it by its roots, as is the general and right method: for theſe multiply exceedingly, and may be made to yield early crops, with little coſt or labour.

"The Iriſh huſbandman, ſays Mr. Switzer, after blaming the Engliſh for planting this root uncut, becauſe it often contains five or ſix eyes, or perhaps more, from which the produce of the enſuing year is to ſpring; and alſo for not allowing that bulb, or rather the great number of ſhoots and bulbs that proceed from it, a ſpace of earth ſufficient for their nouriſhment, which is the reaſon why ſo many poor, ſtinted, unſerviceable potatoes are dug up in the autumn, relates the practice of his country, which is to chuſe middle-ſized roots, for the largeſt are generally eaten, to ſingle out the eyes that ſeem ſtrongeſt and moſt vigorous, and to cut them out in ſquares of at leaſt half an inch every way: ſo that one root will ſometimes furniſh three or four good pieces to ſet.

"The ground, prepared for planting, is marked out for beds four or five feet wide, with intermediate alleys of two or three feet. It is then trenched, only a ſingle ſpit deep, and the bottom of the trench, made as in common garden-trenching, is covered with dung, long and ſhort, taken out of a wheelbarrow which ſtands at the labourer's elbow. The potatoe-eyes, cut as before directed, are placed upon this dung, at about five or ſix inches aſunder; and this trench is filled up with the mould taken out of the next, which is marked by a line at the diſtance of two or three feet. This trench is again filled with the mould of the next, and ſo on to the laſt, which is filled from the alley.

"The uſe of the dung thus laid at the bottom of the trenches, is not only to make the roots grow ſingle, for not above one root, or at moſt two, will in this caſe be produced by each eye, and theſe will be large and well fed; but it is attended with the farther advantage of making the potatoes run, and ſpread themſelves to a certain determinate depth, which is no ſmall help to their growing large.

"The laſt thing to be done to them is, in April or May, (for they are planted in February or March) as ſoon as they begin to riſe, to dig the earth out of the alleys as is done for aſparagus, and to cover the potatoe bed with it, about five or ſix inches thick. This

will

will give new life and vigour to the roots, will keep the green from running too much to haulm, and will make the bulbs grow much the larger. By this means the crop of fine large potatoes will be almoſt the double of what is obtained when they are planted promiſcuouſly in the common way; nor will any farther culture be requiſite till they are fit to be dug up; except the pulling out of ſome of the largeſt weeds."

Mr. Miller's reaſons for diſapproving of the planting, either of the ſmall offſets entire, or the eyes cut out of larger roots, are, that though the former generally produce a greater number of roots, theſe roots are always ſmall; and that the cuttings of the larger roots are apt to rot, eſpecially if wet weather happens ſoon after they are planted. He therefore recommends, to make choice of the faireſt roots for ſetting, and to allow them a larger ſpace of ground, both between the rows, and between the plants in the rows; and he aſſures us that he has obſerved, when this method has been followed, that the roots, in general, have been large the following autumn. M. Duhamel, in his Elements of Agriculture, does not object at all to the planting of the cuttings.

The ſoil in which this plant thrives beſt, is a light ſandy loam, neither too dry nor over moiſt, but brought to a fine tilth, and ploughed very deep: for the deeper the earth is looſened, the finer and larger the roots will grow. In the ſpring, juſt before the laſt ploughing, a good quantity of rotten dung ſhould be ſpread on the ground, and this ſhould be ploughed early in March, if the ſeaſon be mild; otherwiſe it had better be deferred until the middle or latter end of that month; for if a hard froſt ſhould come on ſoon after the roots are planted, they may be greatly injured, if not deſtroyed, thereby; but if they can be planted in the ſpring, without that danger, the better it will be.

The laſt ploughing ſhould lay on the ground even, and then furrows ſhould be drawn three feet aſunder, and ſeven or eight inches deep. The roots ſhould be laid at the bottom of theſe furrows, about a foot and a half aſunder, and they ſhould then be covered in with earth.

After all, the ground intended for potatoes is planted in this manner, it muſt remain in the ſame ſtate till near the the time when the ſhoots are expected to appear; then it ſhould be well harrowed both ways, as well to looſen the ſurface and render it ſmooth, as to tear up the young weeds which will have begun to grow by that time. If much wet has fallen after the planting, it may have caked the ſurface of the earth, ſo as to retard the ſprouting of the plants; and this harrowing will, in ſuch caſe, almoſt anſwer the intent of a firſt hoeing.

I have placed the rows of potatoes at three feet diſtance, continues Mr. Miller, in order to introduce the hoe-plough between them; becauſe that will greatly improve their roots: for by twice ſtiring and breaking of the ground between theſe plants, not only weeds will be deſtroyed, but the ſoil will be ſo looſened, that every ſhower of rain will penetrate to the roots, and greatly quicken their growth. But theſe operations ſhould be performed early in the ſeaſon, before the ſtems or branches of the plants begin to fall and trail upon the ground: for after that, it cannot be done without injuring the ſhoots.

If theſe hoe-ploughings are carefully performed, they will prevent the growth of weeds, till the haulm of the plants cover the ground; and after that there will be little danger of their growing ſo as to injure the crop; for the haulm will keep them under: but as the horſe-hoe can only go between the rows, it will be neceſſary to make uſe of the hand-hoe to ſtir the ground, and deſtroy the weeds in the rows, between the plants. If this be well done in dry weather, immediately after each of the two horſe-hoeings, it will be ſufficient to keep the ground clean until the potatoes are fit to be taken up; which will be very ſoon after the firſt froſt in the autumn has killed the haulm. They ſhould not remain much longer in the earth, leſt the roots themſelves be froſt-bitten, which ſpoils them. A four or five pronged fork is better to dig them up with, than a ſpade, becauſe it is leſs apt to cut them: but the principal

principal thing to be conſidered here, is the clearing of the ground thoroughly of them: for if any are left, they will ſhoot up among the next crop, whatever it be, and do conſiderable damage, eſpecially if it be wheat, as is generally the caſe, ſown in the common broad-caſt way.

The beſt way of keeping theſe roots during the winter, is to lay them up in a dry place in very dry ſand, or in fine and perfectly dry earth.

The method of laying dung only at the bottom of the furrows in which the roots are planted, "is a very poor one, (ſays Mr. Miller) becauſe, where the potatoes begin to puſh out their roots, they are ſoon extended beyond the width of theſe furrows, and the new roots are commonly formed at a diſtance from the old: ſo will be out of the reach of this dung, and conſequently will receive little benefit from it." But rather the contrary would ſeem to be the caſe, according to the Iriſh huſbandman, who, ſeems to ſpeak from experience, when he ſays, he had intended expreſsly to anſwer this very objection, that "the dung is placed at the bottom of the furrows on purpoſe to make the roots grow ſingle; and that its being ſo placed is attended with the farther conveniency of making the potatoes run, and ſpread themſelves at a certain determinate depth, which is no ſmall help to their growing large." Facts muſt here determine which is right: as they alſo muſt in regard to ſome parts of what Mr. Miller adds in the following words: "As moſt farmers covet to have a crop of wheat after the potatoes are taken off the ground, ſo the land will not be ſo thoroughly dreſſed in every part, nor ſo proper for this crop, as when the dung is equally ſpread, and ploughed in all over the land, nor will the crops of potatoes be ſo good. I have always obſerved, where this method of planting the potatoes has been practiſed, the land has produced a fine crop of wheat afterward, and there has ſcarce one ſhoot of the potatoe appeared among the wheat, which I attribute to the farmers planting only the largeſt roots: for when they have forked them out of the ground the following autumn, there have been ſix, eight, or ten large roots produced from each, and often many more, and ſcarce any very ſmall roots; whereas, in ſuch places where the ſmall roots have been planted, there has been a vaſt number of very ſmall roots produced, many of which were ſo ſmall, as not to be diſcovered when the roots were taken up; ſo have grown the following ſeaſon, and have greatly injured whatever crop was upon the ground."

Will not a thorough ploughing and good harrowing, after the crop of potatoes has been taken off the ground, intermix the dung laid in the furrows, and the contiguous earth moſt impregnated thereby, with the reſt of the ſoil; perhaps almoſt as well as if the dung had been ſpread equally over the whole field, at the very firſt? If it will, the preſumption ſeems ſtrong in favour of the Iriſh method. For certain it is, that the land ought to be well ploughed and harrowed after the potatoes are removed, before it is ſown with any other crop; unleſs the ſeed for that crop, which generally is wheat, be ſprinkled by hand between the rows, as they are dug up, and there covered with the earth then turned over. This is practiſed in ſome parts of France: but, as M. Duhamel obſerves, the grain is ſo apt to be diſtributed unequally in this method, that it is better to plough the ground, and ſow it, in the regular way.

If the farmer apprehends that his land has not been thoroughly cleared of the potatoes, and is therefore afraid of their damaging his enſuing crop; his beſt way will be to lay it up very roughagainſt winter; becauſe the froſts of that ſeaſon are known to kill and rot all potatoes in the ground expoſed to them, and it will at the ſame time be thereby finely prepared for ſpring corn; eſpecially as it will have been well enriched by the haulm of the potatoes lying upon it.

Though potatoes delight moſt in a light ſandy loam, neither too dry, nor over moiſt, as was obſerved before; yet Mr. Maxwell ſays he has ſeen them thrive well on ground that ſeemed to be very bad; even in deep moſs, which could not bear horſes to plow it, but which is conſiderably bettered by them; and on coarſe heath, where they were ſucceeded by grain, without more dung than

than was laid on at firſt. Of ſo improving a nature are they, and ſo much is the land enriched by the rotting of their ſtalks among it, and the digging it gets in raiſing them.

Several experiments communicated to M. Duhamel concur to prove the extraordinary increaſe of potatoes cultivated with the horſe-hoe: but as this will always be the conſequence of the new huſbandry, wherever it is properly uſed, I ſhall only borrow from him, on this occaſion, M. de Villier's account of his method of practice, becauſe it is the cleareſt and moſt conciſe:

"There are, ſays he, ſeveral ſorts of potatoes. That which I cultivate is the middle-ſized. It is planted about the end of April, or the beginning of May, and it ripens in October. My beds are five feet wide. I give them two ploughings in the ſpring; at the ſecond of which I half fill the main furrow. Before I plant, I cut a ſmall furrow with the ſingle cultivator, which likewiſe looſens the earth; but if it be moiſt, I put a double ſpring-tree bar to the cultivator, to avoid the poaching of the horſes. I then plant the potatoes a foot aſunder in the row; chooſing for this purpoſe ſuch as are about the ſize of a walnut. They are thruſt in by hand, two or three inches deep; and if the mould does not then cover them ſufficiently of its own accord, a little more is puſhed down upon them.

"A ſlight hand-hoeing can hardly be avoided afterwards, to deſtroy the weeds which ſpring up at the ſame time as the potatoes: but this hoeing need not extend farther than three or four inches on each ſide of the row; becauſe the plough will do the reſt.

"I give the firſt hoe-ploughing in the ſpring, as for wheat; but earlier or later, according to the condition of the ground.

"My ſecond hoe-ploughing is given as ſoon as the plants are tall enough to be earthed up; that is to ſay, when they are eight or ten inches high. I then turn the earth up towards them as much as poſſible.

"As this plant ſpreads greatly, and ſhoots out very faſt, it would be impoſſible to give more than two of theſe hoeings, if one ſhould neglect to take advantage of the time when its leaves and branches do not entirely cover the bed.

"The roots are dug up in October or perhaps ſomewhat earlier or later, according to the ſeaſon, with a ſtrong iron prong; ſhaking and clearing them well from the mould. They are then left to dry for ſome hours, and are afterwards laid in a place where the froſt cannot reach them.

"This fruit, which yields ſurpriſingly, is of great ſervice to feed and fatten cattle, eſpecially when it has been boiled a little. They like it very well raw, after it has been kept a few months above ground: but it is beſt for them after it has been boiled."

The reader is obliged to the ingenious Mr. Irwin for the following account of cultivating potatoes in Ireland, and which we ſhall give in his own words:——

"The potatoe, ſays he, is become a root of ſuch immenſe utility, eſpecially to the poorer ſort, within this century, that too much, methinks, cannot be ſaid towards improving and extending the culture of it.

"In Provence, Dauphiny, Switzerland, and ſeveral other parts of Europe, and even in America, it yields commodious, abundant relief to the more indigent, as being eaſily and plenteouſly propagated in almoſt every kind of ſoil.

"In Ireland particularly it is the principal food of the poor during the greater part of the year, without which, ſince the late unproportionable riſe of lands in that kingdom to the trade of it, they could not well ſubſiſt. And, indeed, it ſeems a particular favour of Providence ſent to them on this account.

"In times, not very remote, lands were cheap there, and the peaſantry, conſequently, lived on nourithment ſomewhat more luxurious, and diverſified: their labour alſo was leſs burtheenſome. But now, being obliged to work hard at four-pence and ſix-pence a day, and their rents conſiderably augmented, it will not ſeem ſurpriſing, that this root alone has become the ſtaple of their ſupport, and that they have been the firſt people in Europe, or, perhaps, in the world, that have led the example

example in an extenſive improvement of it. This may naturally be ſuppoſed to ariſe from cloſe-preſſing neceſſity, the moſt cogent and inſpiriting of all motives.

"In truth with much reaſon; for a poor labourer, in that ill-fated country, is driven to ſeek his ſole refuge for ſubſiſtence in this root, from the inexorable impoſition of a hard-hearted landlord, (ſorry I am to have it to ſay, too many of them grind the poor; but hope it will not belong the caſe) who thinks he cannot get too much for his land out of the perſons, or purſes, of his dependents, and who hath ſo inverted the old cuſtoms, that a hewer of wood, and drawer of water, (and many of theſe perhaps deſcendants of former proprietors) can afford himſelf but a miſerable ſcanty platter of potatoes, ſeaſoned with a palatable grain of ſalt, and waſhed down with a draught from the next rivulet, to ſupport the fatigue of thirteen hours (ſtatute quantity) of unceaſing labour, about his ancient manſion-houſe, or in his elegant gardens, well-laid out cloſes, or refreſhing bog-holes.

"The potatoe is a root, a little of which is very filling, quickly appeaſing hunger; but by no means a laſting ſolid nouriſhment for a labourer, as evidently teſtify the ſquallid looks of numbers of the poorer Iriſh; though at the ſame time it is in general wholſome, agreeing with moſt ſtomachs that can vary their food; but, like other productions of the earth, forbid in many caſes by the medicinal tribe.

"There are ſeveral ways of breeding potatoes in Ireland, which partly ariſe from the difference in ſoil, and kinds of ſeed. The different ſoils for this purpoſe in uſe in my neighbourhood, for about twenty years paſt, and which, I believe, are pretty general, are the following, wherein they are abundantly propagated, viz.

"Firſt, On rich clay land without any manure, vulgarly called graſs potatoes.

"When a leaſe is near being expired, that is, during the laſt ſeven years of it, if there be no covenants grounded on the ſtatute againſt waſte, &c. the tenant, finding no hopes of a renewal, ſets conſiderable tracts in this way, where the ſoil will admit of it.

"Secondly, on good ley land well gravelled, (otherwiſe ſanded) which ought to be done a year before planting. But the poorer ſort, who are the chief cultivators of this root, are obliged to ſand and plant at the ſame time, or nearly thereabouts; which is very deſtructive to themſelves, their potatoes not having the proper benefit of the manure; at leaſt one part in three of the return are on this account exceeding ſmall, and are from hence called poteens by them, being a diminutive expreſſion. Whole fields are ſet in this way, (commonly called ſpaddane) in which a conſiderable trade is driven; eſpecially in the provinces of Munſter and Connaught.

"Had it been properly and moderately done, it would be a fine preparation for the increaſe of corn, and the laying down and bringing in, or in other terms the reclaiming of land; but the poor do it ſo negligently, and mangle it ſo intolerably, having but a ſhort temporary uſe in it, beſides paying near double the worth for it, that this manufacture, which might otherwiſe be of conſiderable benefit to Ireland, is, as now carried on, rather the contrary.

"Thirdly, On ground previouſly gravelled (that is, perhaps ſix months before) and dunged at ſetting time. There is but little done in this way, except by the gentry, and renters of land for their private uſe; it being as yet out of reach of the peaſantry, unleſs in a few inſtances.

"Fourthly, On the ley with dung alone. Marle is not in uſe in my neighbourhood, though there is plenty of it in ſeveral parts of it; therefore cannot yet inform you how it would do for the potatoes in that diſtrict. As to potatoes ſet in the ley with dung alone, this manufacture alſo is done, as you may judge, moſtly by the more opulent. I have, however, often ſeen large fields ſet in this way to the public: but it is not of late years ſo much the cuſtom, this ſort of land being commonly kept for grazing: this hurts the land; and any preparation out of the ley for potatoes will, if not previouſly gravelled.

"Fifthly, In arable or ſtubble land, (vulgarly called ſticking or thruſting of potatoes, becauſe they are ſown with a

ſtick, pointed at the end, about an inch diameter and two feet long, with the loy, otherwiſe the Iriſh ſpade.) In this method dung is alſo uſed, which ſhall be noticed in its place.

" Theſe are the moſt general methods that now occur to me, or I believe that are in uſe. There are, however, ſome others ariſing from the quality of the ſeed, practiſed only by the curious, in which the plants are put down at nine or twelve inches aſunder every way, in little hillocks, (like the hop plant) as practiſed in ſeveral counties in England; and, if you land them at certain proper ſtated times while vegetation continues, you will have a handſome neſt of large oblong potatoes at every landing.

" I made the experiment of one ſort in my garden; and out of half a dozen potatoes cut into ſeveral pieces, each having an eye, I had, to the beſt of my remembrance, without exaggeration, a quantity equal to twelve Winchester buſhels.

" This kind of potatoe is introduced into Ireland but of late years: it is however well known there.

" A potatoe entirely black is alſo in uſe in Fingal, near Dublin, fructifies abundantly, and eats exceeding dry, which principally marks the goodneſs of this root in almoſt every inſtance.

" There are ſeveral kinds of potatoes. Mr. Maxwell, of Arkland in Scotland, a very judicious gentleman, has particularly noticed ſix ſorts, viz. The long red, the round red; the long white, the round white, or Spaniſh potato; the blue, the leather-coat, and an early kind that comes in a month ſooner than the common ſort, though planted at the ſame time.

" This root being greatly manufactured in Ireland, they mix moſt of the better ſorts promiſcuouſly, both for uſe and ſeed.

" I remember, about twenty-five years ago, the large red potatoe, then called the Caſtonian, (perhaps from Caſtile) as alſo the oblong Spaniſh white potatoe, to be chiefly in uſe; but now a leſſer ſort, ſuch as the Munſter or kidney potatoe, of a whitiſh or light-iſh yellow colour, the leather-coat, or round redCronian potatoe, with a rough thick ſkin, and particularly that ſtiled the Spaniſh white potatoe, are moſtly in uſe.

" All theſe ſorts are cut for ſeed according to the number of eyes on them, and thrive generally well with very little care, ſo that all ſorts being now ſo plenty, and anſwering ſo well, there are (as we may eaſily judge) no over-nice diſtinctions made about them there. The poorer Iriſh, who affect not to plant this root in bottom lands, or wet ſwampy grounds, unleſs hard preſſed for ſoil, are even in this caſe ſeldom attentive about the kind of potatoe they put down, the return being commonly wet, unfit for eating, and only proper for ſeed, which (from my little experience) I think makes but indifferent, though ſown in the beſt prepared upland; for too much moiſture, as well as too much dung, makes a potatoe wet: and plant it when you will, I am apprehenſive it never loſes this quality, which is the worſt it can have, except being rotten, or froſt-bit; nor will any eat ſo well, raiſed from dung, as without.

" As the potatoe thrives in different ſoils, ſo there are different methods of cultivating it: I will therefore now proceed to that moſt generally in uſe in my neighbourhood, (and indeed all over the kingdom) called graſs potatoes or ſpuddane, and by ſome (improperly) conacres, which ſeems to be the natural culture, but doubtleſs not ſo good to make the land ſtand long proof, (notwithſtanding the gravelling) as if artificial manures were added, ſuch as dung, compoſt, lime, &c.; for marle, lime-ſtone, gravel, ſea-ſand, ſhells, &c. I conſider in the claſs of natural manures and the beſt; and providence hath kindly given them in every ſpot, (even in the unpromiſing deſerts of Zara, &c.) had we known how to come at them.

" Land in the ley, (as I ſaid before) and that which requires no manure, the Iriſh ſeek moſt greedily after, ſome of which has not been ploughed perhaps within this century: ſo that you can only juſt diſtinguiſh that it has been tilled, and the tilth generally curved, the old people inclining the plough with the caſual ſhape of the field, ſo as

to

to let the water in the furrow have a drip or fall.

" When a peasant has the good luck to get a bit of such choice ground, (for two or three of them will be concerned in an acre, and few take more than one) he follows the old ridge with his *loy*, or Irish spade, unless compelled by the possessor of the land to make his ridges straight, which he most unwillingly does, and at best but awkwardly, with a rope made of hay or straw, or some of his wife's worst tow; neither of which stretching tight, and often breaking, seldom admit well-looking ridges: these he makes from one end of his ground to the other, the beds being about three, or at most four feet wide, and the furrows, or trenches, about two. When he deposits the seed on his bed, at about four or six inches at most asunder, he divides the turf of his furrow in two equal parts, which he turns alternately in sods on the edge or verge of each bed, the green side on the potatoes, cutting the sods on three sides or angles, leaving that next the bed uncut. This laborious work the poor fellow does surprizingly quick: two more men follow him, one digging the under-stratum, and throwing up on the middle of the bed as much of the earth as he conveniently can with his *ley*: the remainder the third man casts on with his shovel, settling the bed in the form, or manner, in which it is to remain.

" Some cover their potatoes at first (through want of time) with only the sod, and about four or five inches of earth, and finish them perhaps, that is, cast the last covering on them, not for a month, or six weeks after; which possibly may greatly check their growth. Many account this the best way, and it is become common; but I attribute the neglect of not finishing their potatoes (as the term is) in due time, to no want of proper knowledge in the common Irish, but their inability to give the proper attention to their own little affairs, occasioned by the greedy severity of their masters, as before observed.

" Others there are (and many) who, making the furrows unproportionably narrow to the beds, throw up a third spit or stratum, and perhaps not until two months after the first setting.

" This pernicious method may possibly destroy or check the weeds; but certain I am, it will not contribute to the increase or largeness of the root, in the unphysical or over heavy manner in which I have seen it done; because this lower stratum, which is mostly sand, remains on the top of the richest part of the soil, and being thus unmixed with it, prevents it from receiving the proper benefits of the air, &c. besides, too great a covering on the potatoe is highly prejudical to it.

" In other cases, these strata thrown up, and mixed into a good tilth, would answer wonderfully, mixing well being the life of good tillage. I would therefore in this place recommend to our farmers (who are too penurious of their land) to make their potatoe trenches so wide, as not to require throwing up much of the third or sandy stratum on the last covering, or landing, of their potatoes: and they will find a much greater return, and one half (or more) less of *pareens*, or small potatoes: which is an object highly worthy of their notice. The experiments I have made, I purpose repeating on my return to Ireland, and hope to prove this simple method to exceed that in the hillock, or in the drill way.

" In this manner all ley land is sown with potatoes by the common people, and most others, whether manured or not. If dunged, the dung is laid out as the ridges are to be, but the sand is spread all over the surface. Commonly little boys and girls precede the setters on the ridges, laying down the seedlings or potatoe eyes, which they do very quick, and tolerably well, at the appointed distance. This seems a giddy part of the business, and well suited to their years; but custom makes them perfect in it.

" The next general method is planting potatoes in stubble ground, which is, in the common way above-mentioned, by dunging it well, and sometimes by plowing it in, and then shovelling up the ridges, a man going before, lightly digging them, that there may be a sufficient quantity of mould to cover them; but this the poorer sort cannot well compass to do, and always avoid it when they can get a fresh or ley surface.

" Nor do they ſow them to chuſe, the ſecond year, in the ſame ground, without dung or ſome other artificial manure, (for the natural, ſuch as ſand, marle, &c. would not do) unleſs it be exceeding good.

" Lime, indeed, in this caſe would very probably anſwer, but it is rarely tried.

" There is alſo a cuſtom a good deal in uſe, which is by ſticking or thruſting potatoes in ſtubble land freſh ploughed, which is done in this manner: a man (but ſeldom two) goes on the crown of a narrow ploughed ſet, and ſticks his *ley*, or *Iriſh ſpade*, in it, every here and there, with his right foot, holding it in his left hand, and with it puſhing the ſpade once, and ſometimes twice from him, to make an opening, (which I have ſeen done with a good deal of dexterity) and with the right hand, that contains the ſeed, (a convenient quantity of which he carries in an apron or cloth tied round his middle, ſo as to let the contents be eaſily come at, he throws one, and ſometimes two ſets, or eyes, into the opening which the *ley* makes behind; and on his drawing it away, the looſened earth falls in and covers them: Soon after he dungs the ridges, and covers them up, as in the preceding method, with mould out of the furrows.

" Sometimes alſo they do this work with a ſtick about eighteen inches long, and an inch or ſo diameter, pointed at one end, and ſomewhat curved at the other. By this eaſy means huſband, wife, children, and ſervants,) if they have any) and a friendly neighbour or two, (who may be helped in return) aſſiſt at it for greater expedition, eſpecially when the ſeaſon happens to be advanced.

" In Scotland they do this work ſomewhat differently.

" In Ireland alſo there are many who ſow potatoes after the plough, the ploughman letting the ſets drop in as he goes along; and a harrow matched to the ſame plough, following him cloſe behind, covers them in. There is no great difficulty in this, the land being in tilth. Over all they put dung; but they ſhould mind to give it a light covering, that the ſubſtance of it might impregnate with the adjacent earth, which it would not do, but evaporate by being left expoſed to the air, &c. yet this precaution many are very negligent in.

The other methods, as in the drill, or hillock, or horſe-hoeing way, &c. are little uſed there, except among the more curious; but they being well known in England, it is needleſs to mention them in this place.

" The next thing requiſite is the fencing, which ſhould be done, at fartheſt, before the ſtalk begins to appear; for if the cattle, that are in that ſeaſon greedy for freſh vegetables, get at them, the roots of ſuch as they nip will never come to the ſize they otherwiſe would.

" This is well known in Ireland; and the poor, chiefly I believe from inability, and partly from a ſort of careleſſneſs or rather lazineſs they ſtill inherit (notwithſtanding the mixture of Engliſh and Norman blood, &c.) from their Spaniſh anceſtors, are very remiſs in this reſpect; eſpecially in the chiltern or more fertile parts of the country; where, in moſt matters of huſbandry, they leave too much to chance, relying on the bounty of the ſoil.

" About me, and in many other parts, they very commonly do not put on the firſt covering till about the middle of May; and the ſecond, perhaps, not for a month after; ſo that it is often July before they fence them properly: and where many of them are concerned in a plantation (as is uſually the way) it is moſt troubleſome and difficult to get each man to do his part of the ditching, which commonly is but a ſorry mound of ſods, with ſome buſhes ſodded down on top, to keep out ſheep that ſmell this plant when it riſes, (as cattle do corn) and are very dextrous at getting at it.

" Some of theſe poor people are ſo heedleſs, they never can be brought to make their fences; and then the owner of the ground, in his own defence, is obliged to get it done at an advanced price, and they to pay for it, or their potatoes to remain.

" Many of them, eſpecially in cheap years, leave them on the landlord's hands; and, unleſs a farmer collects himſelf, or has a good ſervant to do it, the rent is not had without immenſe trouble, and ſome of it never. Notwithſtanding

withſtanding theſe difficulties, many farmers have made eaſy fortunes in this way.

" Thus it happens, at the time they are often finiſhing the fencing, they ought to be weeding their potatoes.—The weed that moſtly annoys them is the Scotch thiſtle: this ſhould be cut away in June, and if the ſoil ſhould be ſo rich as to require a ſecond weeding (which is very often the caſe) it ſhould be done in Auguſt. There will be no other trouble with them till digging time.

" The beſt time for this work is in the latter end of October, or beginning of November, to avoid the early froſts, which are mortal to them: but if, by bad huſbandry, they have been planted late, they ſhould be left longer in the ground, and covered with litter, or haulm, to prevent being loſt in this way.

" About Michaelmas, the cattle are let through them, the roots not being then affected by the nipping, or beating down of the ſtalk: this the peaſants know by the colour of it, which becomes a dark brown, loſing its verdure; as alſo by the apple and root.

" The more needy begin to dig them for uſe in Auguſt, though they are not then near ſo long in ground as they are in England; which demonſtrates the excellence and ſtrength of the Iriſh ſoil.

" When gentlemen farmers dig their potatoes, they ſet on a great number of hands at once, two to a ridge: boys and girls gather them promiſcuouſly, big and little, into bags containing about two Wincheſter buſhels; and thus they are carried to the farm-houſe, and thrown into a room, in one heap; part of which is deſtroyed by the froſt, a great part by the kitchen, alſo by the hogs, who deſtroy them much while in the ground, there being hardly any fencing againſt them; a great part are alſo ſtole by the followers, or hangers-on; and the remainder rarely ſuffices for ſeed;—of ſo little value is this eſtimable root conſidered in thoſe parts: and yet I have often known them at a very high price, from ten to twenty ſhillings, and upwards, the big barrel, which is the uſual meaſure in the weſtern parts of Ireland; that is, above two barrels, or eight buſhels, Wincheſter meaſure.

" Had they ſuch places as Covent-Garden near them, the caſe would be far different: but where there are no convenient and briſk markets, the waſte in farms is always great.

" Though, as I remarked before, low or ſwampy grounds do not anſwer well for potatoes, yet they ſometimes thrive, and are large, the meat being generally ſcabby, cloſe, wet, and heavy, from the too great impregnation of the water, which renders them unpalatable, and not the beſt for ſeed; however, ſuch are chiefly uſed in this way: yet I have ſeen them planted in red bogs, which are the wetteſt and worſt; and the bog being previouſly ſanded and dunged, the ſtalk looked green and healthy, and ſome of the roots might perchance have eat dry; but thoſe planted in black, or drier bogs, have been found to ſucceed well.

" There is no culture perhaps, yet known, will better reclaim waſte and unprofitable lands, than that of the potatoe. Ireland can well prove the truth of this aſſertion, in a numberleſs variety of inſtances.

" I have ſeen ſeveral tracts of woodland ſtubbed up, and brought into fine tilth, by means of the potatoe huſbandry. America, I believe, can ſay the ſame.

" Of late years the hard-hearted ſky-farmers, that is, the inferior ſort, and even ſome of our gentlemen-farmers, drive the poor into the mountains, moory grounds, wooded and ſtony lands, and even into the bogs; and when, by the culture of the potatoe principally, they have reclaimed them, ſo as to be fit to admit cattle, they are turned out without ceremony. I have in ſuch places ſeen as fine crops of potatoes, and afterwards flax, and different kinds of corn, as ever I met with any where.

" The mountain and other ſurfaces, except bog, ſeldom fail being bleſſed by nature with limeſtone, gravel, (which is the commoneſt) or ſome other manure, adapted to them; ſo that it is nothing but hands, money, and a proper limitation of the grazing-farming, that are wanting to make almoſt the whole kingdom look like a garden,

garden, or like England; I need go no higher with the compariſon.

"It is true, in ſome few counties of Ireland, in particular diſtricts, nature either has not been ſo bountiful, or the farmers have not found out the internal manures; being obliged to carry ſea-ſand, and other ſorts, many miles; in which, however, they find their account, notwithſtanding the impolitically too much limited trade of the kingdom.

"Before I diſmiſs this ſubject, it may be proper to obſerve, that a ſecond crop of potatoes is ſometimes taken out of the ſame land ſucceſſively; but this is not common, at leaſt about me, though I believe the land is as good as any in the province. On the contrary, the uſual way is, after the firſt crop of potatoes is taken off, if the ſoil is ſtrong, they immediately ſow bere in it, or keep it till the following ſpring for flax, which requires an equally ſtrong ſoil: or if the ground be but of a middling good ſort, they ſow it, juſt after the potatoes are taken out, with wheat; or keep it till the April following for barley.

"The ſky-farmer generally takes the land into his own hands after the firſt crop of potatoes, and ſows it with bere, wheat, or barley, for two or three ſeaſons; after which, if he refreſhes it with a ſummer, or a winter fallow, he ſows the ſame kinds of grain in it for two or three ſeaſons more; then he takes two or three crops of oats; and when it is well impoveriſhed, or drawn (as they call it there) he lets it for ſeveral years together, in con-acres, to the poor people for at leaſt one third more than the real value.

"From hence we may judge how much an alteration of method in huſbandry is wanting in thoſe parts."

POUND, *Avoirdupois*, contains ſixteen ounces. A pound Troy, twelve ounces.

POX. A diſorder in hogs. This is a name by which the farmers expreſs a diſorder of their ſwine, that ſhews itſelf outwardly in a multitude of pimples and blotches; and keeps the creatures miſerable, and makes them pine and waſte.

It riſes from wet and filth in their ſties, and from unwholeſome food.

The remedy is this: Make a hot meſs for the creature, and give it in an ounce of venice treacle.

After it has taken this, let the whole ſkin be well cleaned with ſoap ſuds, and then wherever the ſores and pimples are, uſe the following ointment. Melt over the fire two pounds of hog's lard, and ſtir in half a pint of tar. When it is taken off the fire, put to it as much flower of brimſtone as will thicken it when cold into a firm ointment. Rub this upon the hog every night for four times, and keep him dry and clean, and it will commonly make a cure in that time.

The farmer muſt obſerve, that this diſeaſe is infectious; ſo that he muſt ſeparate thoſe hogs which have it from the reſt, and not put them together again till they have been ſome time well, and he ſees there is no return of the diſorder.

PREDIAL TITHES, Are thoſe which are paid of things ariſing and growing from the ground only, as corn, hay, fruits of trees, and the like.

PRICKS *in a horſe's foot.* Whenever this accident happens, we adviſe the owner to turn his horſe immediately to graſs, and to apply nothing external to it. If that cannot be done, only rub on the horſe's hoof ſome ointment of elder two or three times a day. All tents are pernicious, and all ſpirits.

PRICKLY PEAR. *See* INDIAN FIG.

PRICK MADAM. [*Sedum.*] Houſeleek.

PRICKWOOD. [*Euonymus.*] This grows very common in hedges in different parts of the kingdom, in ſome places called Dogwood. The beſt butchers ſkewers are made of this wood.

PRIMROSE. [*Primula.*] This plant grows in hedges and woods in almoſt every part of the kingdom; if tranſplanted into gardens it loſes its beautiful pale colour, and becomes reddiſh.

Tree, or *Night* PRIMROSE. [*Oenothera.*] There are ſeveral ſpecies of this plant natives of Virginia and other parts of America, and are propagated by ſeeds.

PRIVET. [*Liguſtrum.*] There are two ſorts. 1. The common. 2. The Italian Privet.

The firſt ſort grows common in the hedges in moſt parts of England, where it riſes fifteen or ſixteen feet high, with a woody

a woody ſtem covered with a ſmooth grey bark, ſending out many lateral branches, garniſhed with ſpear-ſhaped leaves, ending with obtuſe points, and are of a dark green. The flowers are white, and are produced in thick ſpikes at the end of the branches, having a tubular petal cut at the top in four parts, which ſpread open. Theſe are ſucceeded by ſmall, round, black berries, which ripen in the autumn. The leaves of this ſort frequently remain green till after Chriſtmas. There are two varieties of this, one with white, and the other hath yellow variegated leaves; but to preſerve theſe varieties they ſhould be planted in poor land, for if they are in a rich ſoil they will grow vigorous, and ſoon become plain.

The ſecond ſort grows naturally in Italy; this riſes with a ſtronger ſtem than the former, the branches are leſs pliable, and grow more erect; their bark is of a lighter colour, the leaves are much larger, and end in acute points, and are alſo of a brighter green; they continue in verdure till they are thruſt off by the young leaves in the ſpring. The flowers of this are rather larger than thoſe of the common ſort, and are ſeldom ſucceeded by berries in this country.

Both theſe ſorts are cultivated in the nurſeries near London, to furniſh the ſmall gardens and balconies in the city, the firſt being one of the few plants which will thrive in the ſmoke of London; but although they will live ſome years in the cloſe part of the town, yet they ſeldom produce flowers after the firſt year, unleſs it is in ſome open places where there is free air.

The Italian Privet is now generally preferred to the common ſort for planting in gardens, the leaves being larger, and continuing green all the year, render it more valuable; and being ſo hardy as to reſiſt the greateſt cold in this country, it may be planted in any ſituation where the common ſort will thrive.

Mock PRIVET. [*Phillyrea.*] There are ſeven or eight ſpecies of Mock Privet, all natives of France, Spain, and Italy, but hardy enough to thrive in the open air of England, except the winters are very ſevere. They are all propagated either from ſeeds or layers, but the latter is generally preferred.

PRONG, An implement much uſed in huſbandry, conſiſting of two or three pieces of iron inſerted into a handle for taking up corn, ſtraw, dung, &c.

PRONG-*hoe*. A term uſed to expreſs an inſtrument uſed to hoe or break the ground near, and among the roots of plants.

The ordinary contrivance of the hoe in England is very bad, it being only made for ſcraping on the ſurface; but the great uſe of hoeing being to break and open the ground, beſides the killing the weeds, which the antients, and many among us, have thought the only uſe of the hoe, this dull and blunt inſtrument is by no means calculated for the purpoſes it is to ſerve.

The prong-hoe conſiſts of two hooked points of ſix or ſeven inches long, and, when ſtuck into the ground, will ſtir and remove it the ſame depth as the plough does, and thus anſwers both the ends of cutting up the weeds and opening the land. The antient Romans had an inſtrument of this kind, which they called the bidens; but they were afraid of its uſe in their fields and gardens, and only uſed it in their vineyards. The prong-hoe comes into excellent uſe, even in the horſe-hoeing huſbandry; in this the hoe-plough can only come within three or four inches of the rows of corn, turnips, and the like; but this inſtrument may be uſed afterwards, and with it the land may be raiſed and ſtirred, even to the very ſtalk of the plant.

PRUNING. Pruning is an operation of the knife performed upon trees occaſionally, in order both to give them any deſired form, and to retrench or reduce irregular and redundant or ſuperfluous growths, or whatever creates confuſion and diſorder.

But this operation is particularly neceſſary to be practiſed on many ſorts of fruit-trees, more eſpecially the dwarf ſorts, ſuch as all kinds of wall and eſpalier fruit-trees; it is alſo neceſſary to be performed occaſionally upon ſtandard trees, both dwarfs and half and full ſtandards, to all of which proper pruning is neceſſary; ſome ſorts annually, as all kinds of wall trees, eſpaliers,

eſpaliers, and moſt other dwarf or trained fruit-trees; to which it is requiſite in order to preſerve the proper figure, and to keep them within their limited bounds, as well as to promote fruitfulneſs; but as to common ſtandards whoſe heads having full ſcope of growth every way, they require but very little pruning, except juſt to retrench any occaſional redundancy, ill-growing branch, and dead wood. Wall trees and eſpaliers, however, require a general regulation of pruning twice every year, in ſummer to retrench the evidently ſuperfluous and ill-placed ſhoots of the year, and to train in a ſupply of the moſt regular ones; and in winter to give a general regulation both to the ſupply of young wood left in ſummer and to the old branches where neceſſary.

For in pruning wall trees and eſpaliers, it is to be obſerved, that as theſe trees having their branches arranged with great regularity to the right and left one above another parallelly, about five or ſix inches aſunder, forming a regular ſpread, ſo as the branches of each tree completely cover a certain ſpace of walling, &c. and as the whole ſpread of branches conſtantly ſend forth every year a great number of unneceſſary and uſeleſs ſhoots: and each tree being limited to a certain ſpace, an annual pruning is conſequently moſt neceſſary to retrench the redundancies, and all irregular and bad ſhoots, to give the proper bearing branches due room, as well as to enable us to confine each tree within its allotted limits, conſiſtent with its regular form.

The firſt pruning neceſſary for fruit-trees is when we attempt to give the head its firſt regular formation, effected by pruning ſhort or heading down in ſpring all the ſhoots produced the firſt year from budding and grafting, that is, the firſt ſhoots from the budding, &c. when a year old being generally pruned down in March, within four or five eyes of the bottom, whereby it throws all the ſap into the remaining lower buds, and thus, inſtead of running up to one ſtem, it puſhes forth ſeveral ſtrong ſhoots from the lower part the enſuing ſummer, ſo as to fill the allotted ſpace of walling and eſpalier regularly quite from the bottom; which ſhoots being trained ſtrait and regular in a ſpreading manner, each at full length all ſummer; and in winter or ſpring following, if a ſupply of more principal ſhoots ſhall ſeem neceſſary to form the head more effectually, prune ſhort alſo theſe ſhoots each to four or five eyes, and each of them will throw out the like number of ſhoots the ſame year, which according as they advance in length, train at regular diſtances at full length during the ſummer as before obſerved; for the ſhoots of wall trees ſhould never be ſhortened in the ſummer ſeaſon, for this would cauſe them to puſh forth many trifling lateral ſhoots; though ſometimes, in order to fill a vacancy as ſoon as poſſible, ſtrong young ſhoots being pinched early in the ſeaſon, as in May or beginning of June, to four or five eyes, will throw out ſeveral proper ſhoots the ſame ſummer, repeating however the work of pruning ſhort occaſionally one or two years, &c. as above, either in general or to particular ſhoots, as it may ſeem proper till a proper ſet of branches are by that means obtained to give the head of the tree a proper formation; afterwards pruning ſhort is to be omitted except occaſionally to any particular ſhoot to fill a vacant ſpace: but ſome ſorts of wall trees require almoſt a general ſhortening of their ſupply of ſhoots, ſuch as peach, nectarines, &c. which bear only on the young wood; have that of each year ſhortened, to force out a ſupply of ſhoots for future bearing; other ſorts of wall-trees and eſpaliers are not in the general courſe of pruning to be ſhortened, ſuch as pears, apples, plums, and cherries, which bear in the old wood from two or three to many years growth.

After the trees are thus furniſhed with a proper ſpread of branches trained regularly to the wall and eſpalier, they will every year throw out many more ſhoots than are wanted, or can be converted to uſe, by being ſome too numerous, others ill placed, and others of a bad growth, all of which muſt therefore be regulated accordingly by proper pruning; for as the regular figure of the tree, well furniſhed in every part equally from the bottom to the top of the wall or eſpalier with proper branches, capable of producing a reaſonable quantity of good

good fruit, are the principal objects of pruning; all our operations muſt be directed to theſe ends.

We muſt therefore be careful to caſe the trees of every thing that is either ſuperfluous, irregular, or hurtful, by pruning twice every year, a ſummer and a winter pruning. We call that ſuperfluous which, though good and well placed, yet are more than are wanted or can be properly laid in, and that irregular which is ſo ill placed as it cannot be trained with regularity to the wall or eſpalier, ſuch as all fore-right ſhoots, being ſuch as grow immediately from the front or back of the branches in a fore-right direction, which though good of themſelves, yet their ſituation renders them irregular or unfit for training; and we call that hurtful which is in itſelf of bad growth, ſuch as all very rank or ſingularly luxuriant rude ſhoots; ſo that the ſuperfluous or redundant growths ſhould be thinned by pruning out all that ſeem to cauſe confuſion, and the irregular and hurtful rank ſhoots ſhould be diſplaced, cutting every thing of all theſe ſorts off quite cloſe to the place from whence they proceed, leaving however a proper ſupply, more or leſs, of the regular or beſt placed ſide-ſhoots where neceſſary, ſo as to preſerve every part well furniſhed with bearing wood, trained ſtraight and cloſe to the wall or eſpaliers at equal diſtances; obſerving, that ſome ſorts of wall-trees, &c. require a general annual ſupply of young wood, ſuch as peach and all other trees which bear only on the ſhoots of a year old; others require only an occaſional ſupply of wood, ſuch as apples, pears, &c. and all other kinds that bear on the old wood from two or three to ten or twenty years old or more, ſo that the ſame branches continuing in bearing many years, the trees require only a ſupply of young ſhoots now and then to replace any worn-out and dead branches.

For the myſtery of pruning conſiſts in being well acquainted with the nature of bearing of the different ſorts of trees, and forming an early judgment of the future event of ſhoots and branches, and many other circumſtances, for which ſome principal rules may be given; but there are particular inſtances which cannot be judged of but upon the ſpot, and depend chiefly upon practice and obſervation.

The nature or mode of bearing of the different ſorts of wall and eſpalier trees, &c. is materially to be conſidered in pruning.

For example: Peaches, nectarines, apricots, &c. all produce their fruit principally upon the young wood of a year old, that is, the ſhoots produced this year bear the fruit the year following, and the ſame of every year's ſhoots, ſo that conſequently, in all theſe trees, a general ſupply of the beſt regular ſhoots of each year muſt be every where preſerved at regular diſtances quite from the very bottom to the extremity of the tree, on every ſide in ſuch order as to ſeem coming up regularly one after another, which ſhould be trained principally at full length all ſummer; but in winter pruning, a general ſhortening leſs or more, according to the ſtrength of the different ſhoots, is neceſſary, in order to promote their throwing out more effectually a ſupply of young wood the enſuing ſummer, in proper places for training in for next year's bearing, the fruit being generally produced all along their ſides, immediately from the eyes, they rarely forming any conſiderable fruit-ſpurs, as in the apple, pear, &c. but the ſame ſhoots both produce the fruit and a ſupply of ſhoots at the ſame time for the ſucceeding year's bearing.

Vines alſo produce their fruit always upon the young wood, ſhoots of the ſame year ariſing from the eyes of the laſt year's wood only, and muſt therefore have a general ſupply of the beſt regular ſhoots of each year, trained in, which in winter pruning muſt be ſhortened to a few eyes, in order to force out ſhoots from their lower parts only, properly ſituated to lay in for bearing the following year.

Figs bear alſo only upon the young wood of a year old, and a general ſupply of it is therefore neceſſary every year; but theſe ſhoots muſt at no time be ſhortened unleſs the ends are dead, becauſe they always bear principally towards the extreme part of the ſhoots, which if ſhortened would take the bearing or fruitful parts away: Beſides, theſe trees for the general part naturally throw out a ſufficient ſupply of ſhoots every year for

future bearing without the precaution of ſhortening.

And as to apple, pear, plum, and cherry trees, they generally bear principally on ſpurs ariſing in the wood of from two or three to ten or twenty years old, the ſame branches and ſpurs continuing bearing a great number of years, ſo that having once procured a proper ſet of branches, in the manner already directed, to form a ſpreading head, no farther ſupply of wood is wanted than only ſome occaſional ſhoots now and then to ſupply the place of any worn-out or dead branch as before hinted; the above-mentioned ſpurs or fruit-buds are ſhort robuſt ſhoots, of from about half an inch to one or two inches long, ariſing naturally in theſe trees, firſt towards the extreme parts of the branches of two or three years old, and as the branch increaſes in length the number of fruit-buds increaſe likewiſe accordingly; this, therefore determines, that in the general courſe of pruning all theſe kind of trees, their branches that are trained in for bearing muſt not be pruned or ſhortened, but trained at full length; for if they were ſhortened it would diveſt them of the very parts where fruit-buds would have firſt appeared, and inſtead thereof would throw out a number of ſtrong unneceſſary wood ſhoots, from all the remaining eyes: therefore let all the ſhoots or branches of theſe trees be trained principally at full length, and as they advance, ſtill continue them entire; thus they will all readily form the afore-mentioned little ſpurs or fruit-buds from almoſt every eye; when indeed there is a vacancy, and there is only one ſhoot where two or three may be requiſite, in this caſe only pruning or ſhortening is allowable in theſe trees, to force out the ſupply required.

In theſe trees great care is neceſſary to preſerve all the proper fruit-buds or ſpurs; which are readily diſtinguiſhed by their ſhort, thick, robuſt growth, rarely exceeding one or two inches long.

In the general courſe of pruning all ſorts of wall and eſpalier trees, that when diſplacing the ſuperfluous and ill-placed woods, &c. always take them off quite cloſe both in the ſummer and winter pruning, not leaving any ſpurs or ſtumps of them an inch or two long, as often done, which fills the tree full of diſagreeable ſtumps, and which puſhing out ſtrongly from every eye, crowd the tree with a multitude of unneceſſary and irregular ſhoots, and cauſe great confuſion and obſcurity, and exhauſt the ſap to no purpoſe, as well as occaſion a great deal of labour to retrench them; remember, therefore, that all ſhoots and branches neceſſary to be retrenched muſt be taken off quite cloſe to the place from whence they ariſe; which in the ſummer pruning if attended to early, while the ſhoots are quite young and tender, they may readily be rubbed off quite cloſe with the thumb; but when the ſhoots become older and woody, as they will not readily break, it muſt be done with a knife, cutting them as cloſe as poſſible, and all winter pruning muſt always be performed with a knife.

It ſhould alſo generally be obſerved in pruning in ſummer, that all the neceſſary ſupply of regular ſhoots that are left for training in ſhould never be ſhortened during this ſeaſon, unleſs to particular ſhoots to fill a vacancy; for by a general ſhortening in this ſeaſon, all the ſhoots ſo treated would ſoon puſh again vigorouſly from every eye, and run your trees into a perfect thicket of uſeleſs wood; therefore all ſorts, whether they require ſhortening in the winter pruning or not, ſhould in the ſummer dreſſing, be layed in at full length.

Two ſeaſons of pruning are requiſite for all ſorts of wall and eſpalier trees, a ſummer and a winter pruning.

Summer Pruning.——The ſummer pruning is a moſt neceſſary operation; every one muſt know that in ſpring and ſummer, wall and eſpalier trees abound with a great number of young ſhoots that require thinning and other reforms to preſerve the beauty of the trees and encourage the fruit, and the ſooner it is performed the better; it is therefore adviſeable to begin this work in May or early in June, and timely diſburthen the trees of all evidently redundant or ſuperfluous growth and ill-placed and bad ſhoots, which may be performed with conſiderably more expedition and exactneſs than when after the trees have ſhot a conſiderable length and run into confuſion and diſorder,

diſorder, by their ſhoots forming a thicket, when it will, in a manner be impoſſible to ſee what you are about, beſides the diſadvantage of choaking up the fruit behind ſuch a thicket of wood and leaves; it is therefore of great importance to perform this operation in the month of May or early in June, or when the ſame year's ſhoots are ſufficiently formed to enable you to make a proper choice, and tender enough to require no other inſtrument than the thumb to diſplace the bad growths and ſuperfluities.

However, at any rate, let the work of ſummer pruning be began before the trees have ſo far advanced in ſhooting as to cauſe much confuſion, which would coſt you a great deal of pains, precaution, and perplexity, to penetrate and break through the obſcurity to determine what is proper to retrench or what to leave.

In this pruning, we obſerve above, that a great many more ſhoots ariſe from all the principal branches than are wanted, or that can poſſibly be trained with regularity, or that are well placed or proper for the purpoſe; our buſineſs therefore now is to thin and regulate them, by pruning away the ſuperfluous ſhoots, and all ſuch as are ill-placed and of bad growth as aforeſaid; as to ſuperfluous ſhoots they are to be conſidered as ſuch when any tree throws out a redundancy of wood, or much more than what is wanted, or that can be trained in; of theſe you muſt now retrench the moſt irregular placed, weakeſt, and all ſuch as are evidently not wanted for uſe, and where two or more ſhoots any where ariſe from the ſame eye, clear all away but one of the beſt, reſerving a ſufficiency of the moderately ſtrong and moſt regular placed ſide ſhoots, and always a leading one at the end of every branch, all of which to be trained in to chooſe from in the winter pruning, leaving more or leſs in proportion, according to what the trees are, or the mode of bearing before hinted; though in all thoſe trees that bear always on the young wood leave rather more ſhoots at preſent than what may appear juſt neceſſary, eſpecially of peaches, nectarines, apricots, vines, figs, &c. for it is highly requiſite to reſerve regular wood enough in the ſummer to chooſe out of in winter pruning to lay in for next year's bearing; but as to apples, pears, plums, and cherries, &c. which continue bearing many years on the ſame branches, ſhould leave only here and there ſome good ſhoots towards the lower parts, or in any vacancy till winter, and if then not wanted they are eaſily retrenched. Ill-placed ſhoots being ſuch as either grow directly from the front or back of the branches ſtraight foreright, (called foreright ſhoots) or any other ways ſo ill placed as not to admit of training with regularity, ſo muſt all be cut out quite cloſe; and bad or hurtful growth being conſidered as any very luxuriant ſhoots, diſtinguiſhed from the others by their rank, vigorous ſhooting, and are like to prove injurious by drawing all the nouriſhment, and impoveriſhing the neighbouring ones that are of more moderate growth, ſhould generally be removed, except where any may ſeem proper to leave to fill a vacant ſpace, in which it may be pinched early to three or four eyes, when it will furniſh you with the like number of more moderate ſhoots to fill the vacancy.

Where, however, a tree is in general inclined to luxuriancy, it is proper to retain as many of the regular ſhoots as can be commodiouſly trained in with any regularity, in order to divide and exhauſt the too abundant ſap which cauſes the luxuriancy; for by humouring ſomewhat the natural inclination of luxuriant trees by leaving plenty of branches and theſe moſtly at full length, is the only method by which we can the moſt readily reduce them to a more moderate ſtate of growth.

Pay particular attention always to the lower parts of your trees, for frequently we ſhall find proper ſhoots ariſing in places neceſſary to be trained in, either to ſupply a preſent or an apparent future vacancy, or as a reſerve to replace any decayed, or worn-out, or other bad branch, ſo that if moderately ſtrong well placed ſhoots ariſe in ſuch parts, they are particularly to be regarded at this time; and in winter pruning ſuch of them as are not wanted may be eaſily cut off.

All weak trifling ſhoots ſhould now alſo be taken out, unleſs any ſhall

appear useful to fill a vacancy, or likely to be of ſervice hereafter.

Obſerve in this pruning not to diſturb the natural fruit-buds or ſpurs before deſcribed.

After having ſummer pruned and cleared any tree from all uſeleſs ſhoots as above, let all the remaining proper ſhoots be directly, or as ſoon as they are long enough, trained in ſtraight and cloſe to the wall or eſpaliers, and all of them at full length during the ſummer ſeaſon, for the reaſons before given; not ſhortening any at this time except as before obſerved, when there is any great vacancy, when pinching to three or four eyes may be proper; but let all the reſt be trained at full length till winter pruning, when they muſt undergo another regulation and ſhorten thoſe of ſuch trees as require it, as peach, nectarine, &c.

The work of training in the ſhoots in this ſeaſon is, if againſt walls, both by nailing by means of proper ſhred and nails, and occaſionally by faſtening in the ſmaller ſhoots with little ſticks or twigs ſtuck between the main branches and the wall; and for eſpaliers tie them with ſmall oziers, ruſhes, or baſs ſtrings.

Having thus ſummer dreſſed and trained your trees, it will be neceſſary to review them occaſionally, in order to reform ſuch branches or ſhoots as may have ſtarted from their places or taken a wrong direction, alſo that according as any freſh irregular ſhoots produced ſince the general dreſſing may be diſplaced; and likewiſe as the already trained ſhoots advance in length or project from the wall or eſpalier, they ſhould be trained in cloſe, ſtill continuing them at full length during their ſummer's growth, for every thing ſhould be kept cloſe and regular all ſummer, whereby your trees will appear beautiful to the eye, and the fruit will ſhew itſelf and attain its due perfection.

For by thus properly ſummer pruning and training wall and eſpalier trees early in the ſummer, you preſerve their regularity and proſperity, and by clearing out all the unneceſſary and uſeleſs growths, training the reſt cloſe and regular, the fruit will receive all requiſite advantage from the ſun, air, rains, &c. and it will of courſe attain the greater perfection both in ſize, beauty, and flavour.

Winter Pruning.—In the winter pruning a general regulation muſt be obſerved both of the mother branches and the ſupply of young wood laid in the preceding ſummer, and the proper time for this work is any time in open weather from the fall of the leaf in November until March.

In performing this work of winter pruning, it is proper to unnail or looſen great part of the branches, particularly of peaches, nectarines, apricots, vines, and ſuch other trees as require an annual ſupply of young wood.

Firſt look over the principal or mother branches, and examine if any are worn out or not furniſhed with parts proper for bearing fruit, according to the rules before illuſtrated, with reſpect to the nature of bearing of the different ſorts of trees; and let ſuch branches be cut down to the great branch from which they proceed, or to any lower ſhoot or good branch they may ſupport towards their bottom part, leaving theſe to ſupply its place; likewiſe examine if any branches are become too long for the allotted ſpace either at ſides or top, and let them be reformed accordingly by ſhortening them down to ſome lower ſhoot or branch properly ſituated to ſupply the place, being careful that every branch terminates in a young ſhoot of ſome ſort for a leader, and not ſtumped off at the extremity, as is too often practiſed by unſkilful pruners.

From the principal or larger branches paſs to the ſhoots of the year, which were trained up in ſummer, firſt cutting out cloſe all foreright and other irregular ſhoots that may have been omitted in the ſummer pruning; likewiſe all very weak ſhoots, and thoſe of very luxuriant growth, unleſs it be neceſſary to keep ſome to ſupply a vacant place; then of the remaining regular ſhoots, you are to ſelect a greater or ſmaller portion to leave either as a general ſupply for next year's bearing as in the caſe for peach, nectarine, apricots, vines, and figs; or only ſome occaſional ſhoots, as in apple, pear, plum, and cherry trees, to ſupply the place of any bad or dead branch.

But as peaches, nectarines, apricots, vines, and figs, always bear principally on the year-old wood as before noticed,

noticed, a general ſupply of young ſhoots muſt be left in every part from bottom to top at regular diſtances, all of which, except the fig, muſt be more or leſs ſhortened according to their ſituation and ſtrength to encourage their furniſhing more readily a proper ſupply of ſhoots in ſpring and ſummer for next year's bearing, as before obſerved, leaving the ſtrongeſt ſhoots always the longeſt, as is more fully explained under each of their reſpective *genera*; but as the figs always bear towards the end of the ſhoots, they muſt not be ſhortened.

And with reſpect to the apples, pears, plums, cherries, &c. as they continue to bear on the old branches from two or three to many years ſtanding, they only require an occaſional ſupply of young wood, according as the branches become unfit for bearing and want removing, ſo ſhould accordingly train in here and there in proper places ſome good regular young ſhoots towards the lower part, to be coming gradually forward to a bearing ſtate, to be ready to replace worn-out and other uſeleſs branches; and what ſhoots are not now wanted for that purpoſe cut them out cloſe, not leaving any ſpur or ſtump, as every one of theſe, as we before obſerved, would puſh out ſeveral ſtrong unneceſſary ſhoots the next ſpring, to the prejudice both of the trees and fruit; have particular regard to preſerve the ſhoots at the termination of all the already trained branches entire, not however ſuffer more than one ſhoot to terminate each branch; preſerve alſo carefully all the proper fruit-ſpurs; likewiſe obſerve, that the ſupply of young wood occaſionally reſerved, and the branches in general of theſe trees, ſhould all be trained in at full length, and continued ſo in future, as far as the limited ſpace will admit; and according as any extend above the wall or eſpalier, or any where beyond their proper limits, they ſhould be pruned down with diſcretion to ſome convenient bud, or lateral ſhoot, or lower branch, which train alſo entire.

In this pruning, as in the ſummer dreſſing, it is of importance to have a ſtrict eye to the lower parts of wall trees, &c. to ſee if there is any preſent vacancy or any that apparently will ſoon happen, in which caſes, if any good ſhoot is ſituated contiguous, it ſhould be trained in either at full length, or ſhorten it to a few eyes to force out two or more ſhoots if they ſhall ſeem neceſſary; for precaution ſhould ever be obſerved in taking care to have betimes a ſufficient ſtock of young wood coming forward to fill up any caſual vacancy, and ſubſtitute a new ſet of branches in place of ſuch as are either decayed or ſtand in need of retrenchment.

Sometimes in wall-trees and eſpaliers there are many large diſagreeable barren ſpurs, conſiſting both of old worn-out fruit-ſpurs, and of cluſters of ſtumps of ſhortened ſhoots projecting conſiderably from the branches, occaſioned by unſkilful pruning when retrenching the ſuperabundant and irregular ſhoots, which inſtead of being cut out cloſe, are ſtumped off to an inch or two long, and in the courſe of a few years, forming numerous barren ſtumps, as above-ſaid, and very little fruit, the trees appear like a ſtumped hedge; it is therefore, in this ſeaſon of pruning, adviſeable to reform them as well as poſſible, by cutting all the moſt diſagreeable ſtumps clean out cloſe to the branches, leaving theſe at full length, eſpecially of apples, pears, &c. as before adviſed: and reſerve an occaſional ſupply of young wood in different parts; and thus in two or three years you may reduce ſuch trees to a regular figure and a proper ſtate of bearing.

Bad pruning ruins many a good tree, as is obſervable in numerous gardens, where the wall-trees and eſpaliers appear as juſt above deſcribed, pruned every year, yet never produce any tolerable crop of fruit.

The reaſon is, the operation or art of pruning is much more generally practiſed than underſtood; different pruners have different ideas of pruning; many proceed upon little or no principle, and often prune all trees alike, and their idea of pruning often conſiſts in retrenching annually moſt of the young ſhoots, ſhortening all the branches of every tree without exception, to the great injury of ſome ſorts, and retarding their bearing; likewiſe many pruners in retrenching the ſuperfluous and irregular ſhoots, inſtead of cutting cloſe, as formerly obſerved,

obſerved, they often ſtump them off to about one or two inches long; theſe remaining ſtumps ſhoot out again from every eye, and fill the tree with more numerous uſeleſs ſhoots than before, which being alſo pruned down to ſtumps of an inch or two long, as above, practiſing the ſame every pruning, ſo as in the courſe of a few years every branch is loaded with cluſters of large rugged barren ſpurs, formed wholly of the ſtumps of ſhortened ſhoots, occupying the places where fruit-buds might be expected: It is alſo obſervable, that many pruners think every branch of all ſorts of wall trees whatſoever muſt, in the annual pruning, undergo the diſcipline of the knife, ſo ſhorten all without diſtinction or reluctance, often too with ſo much ſeverity on trees that ſhould not be ſhortened, as to deſtroy the very parts where fruit-buds would have been produced, they thinking this general ſhortening neceſſary to ſtrengthen the branches, which, however, in many ſorts, promotes a too vigorous growth, particularly in trees that produce their fruit on natural ſpurs, forming themſelves gradually all along the ſides of the branches, firſt towards the extreme parts, that ſhortening not only cuts off theſe firſt fruitful parts of the branches, but throws the ſap back with ſo much vigour to the remaining buds, that inſtead of forming fruit-ſpurs, almoſt every bud puſhes out luxuriant ſhoots, and the trees are continually crouded with unneceſſary wood, cauſing a great annual trouble to retrench it, without the pleaſure of having a quarter of a crop of fruit; beſides the annually cutting out ſo much ſtrong wood is very prejudicial to ſome ſorts of fruit-trees.

Too ſevere pruning is very prejudicial to the health of ſome ſorts of ſtone fruit-trees in particular, cauſing them to gum and ſoon decay.

Plums and cherries in particular are often greatly damaged by a too ſevere diſcipline of the knife, theſe trees being very liable to gum by large amputations; it is therefore of importance to attend to theſe trees well in the ſummer pruning, to retrench all the ſuperfluous and irregular ſhoots betimes in the ſummer while quite young, and pinch others occaſionally where wood is wanted to fill vacancies, ſo as to require but little pruning out of large wood in winter.

But if our former hints in the ſummer and winter pruning are attended to in retrenching the uſeleſs wood every year at the time adviſed, you will always preſerve your trees free from all incumbrance and every part will be regularly filled with bearing wood, and their general management will prove eaſy.

A general nailing, &c. muſt every year be performed according as we advance with the pruning.

Therefore it is proper that every tree as ſoon as pruned be directly nailed to the wall, or if eſpaliers, tie them to the treilage, obſerving, that in the winter pruning, as the work of nailing, &c. will require to be performed more or leſs upon all the branches, we muſt be careful to train them with great regularity, nailing them along horizontally, as ſtraight and cloſe as poſſible; never croſs any of the branches, but train them diſtinct and parallel five or ſix inches aſunder, as formerly adviſed, or in proportion to the ſize of the leaves and fruit of the different ſorts, making the oppoſite branches of each ſide arrange equally in the ſame poſition.

Thus far is principally all we have to advance reſpecting the general mode of pruning wall and eſpalier trees; particulars for each ſort being noticed more fully under their proper *genera*; but what we have here advanced under this article of *pruning* is to convey ſome general hints to unexperienced pruners, though there are many expedients and reſources not to be diſcovered but by repeated practice.

Pruning Standards.

Standard fruit-trees require but very little pruning, for as their branches have full ſcope to extend themſelves every way, they muſt not be ſhortened; beſides, as our ſtandard fruit-trees conſiſt principally of apples, pears, plums, and cherries, theſe, as before ſaid, bear fruit on natural ſpurs ariſing towards the upper parts of the branches, which, as obſerved in the wall-tree and eſpalier pruning, determines that we muſt not ſhorten them, nor practiſe any other pruning than juſt to reform any great irregularity, &c.

The firſt occaſional pruning, however,

ever neceſſary for ſtandard fruit-trees, is the firſt two years of their growth, in order to form their heads ſomewhat regular, by retrenching any irregular ſhoots, and when deſigned to have them form more regular ſpreading heads, it is cuſtomary to prune the firſt ſhoots when a year old to four or five eyes, in order to force out lateral ſhoots from theſe lower buds the following ſummer, to give the head a proper formation. After this, ſuffer the branches to take their natural growth, except that, if while the trees are young, any very luxuriant ſhoots ramble away conſiderably from all others, and draw moſt of the nouriſhment, it is proper to prune them, either by retrenching entirely very irregular ones, or ſhorten others more or leſs, ſo as to cauſe them to branch out conſiſtent with the requiſite form of the head.

But let it be remarked in general, that except in ſuch caſes of reducing irregularities, let the heads of all kinds of ſtandards always branch away as faſt as poſſible, both in length and laterally, agreeable to their natural mode of growing; and they will naturally furniſh themſelves abundantly with bearing wood.

Obſerve, however, that as in ſtandard trees of ſome years growth, irregularities and diſorder will occaſionally happen, which ſhould be regulated a little by pruning the moſt conſpicuouſly irregular and redundant growths; performing it always in winter.

For inſtance: Where any branch grows right acroſs others, or in any aukward direction, to incommode or cauſe confuſion in the head, it ſhould be retrenched cloſe; likewiſe any branch that rambles conſiderably from all the reſt, ſhould be reduced to order, by cutting it down to ſome convenient lower branch, ſo as to preſerve ſome regularity. Where the head is conſiderably crouded with wood, let the worſt of the redundancy be thinned out as regularly as poſſible, cutting them cloſe to their origin; obſerve likewiſe where any vigorous ſhoots ariſe in the heart of the tree towards the bottom of the old branches, and grow upright and croud the middle of the head, they ſhould be conſtantly retrenched to their very bottom; cut cut alſo any very cankered parts, and decayed wood, and clear off all ſuckers from the root and ſtem.

Standard trees thus diſburthened from any conſiderable irregularities and confuſion, ſo as all the proper branches have full ſcope to ſpread free and eaſy in their natural manner, they will not fail to repay the trouble in the ſuperior quality of their future fruit.

Pruning Foreſt-Trees, &c.

With reſpect to pruning of foreſt and ornamental trees, flowering ſhrubs, &c. it is very inconſiderable.

Foreſt-trees, &c. muſt be ſuffered to run up as faſt as poſſible, ſo their heads muſt not be ſhortened; all that is neceſſary is, to prune off lateral branches occaſionally from the ſtem, or if while young, any lateral ſhoot of the head is of a very rude rambling growth, and draws all the nouriſhment, it is proper to reduce it as you ſee convenient; but otherwiſe ſuffer the top and all the branches of the head to remain entire, and take their own natural growth; only prune lower ſtragglers occaſionally; obſerving, however, it is very improper to trim up the ſtem too high, as often practiſed to foreſt-trees, as ſcarce to leave any head: never, therefore, trim the ſtem much higher than the full ſpread of the head, for a full head is both ornamental and eſſentially neceſſary to the proſperity of the tree.

And as to the ſhrub kind, they ſhould alſo, for the general part, take their own growth at top; and only prune occaſionally any lower ſtragglers, from the lower part of the ſtem, or any very irregular rambling ſhoot of the head, and all dead wood; but except in theſe caſes, let their heads moſtly ſhoot in their own way, according to their different modes of growth, in which they will appear always the moſt agreeable.

Where, however, it is required to keep ſhrubs low in any particular compartment, you muſt regulate this as you ſhall ſee convenient, either with a knife or garden-ſheers, though knife-pruning is the moſt eligible.

Pruning Implements.

For the purpoſe of general pruning ſeveral implements are neceſſary, ſuch as pruning knives, ſaws, chiſſels, hand-bills, hatchets, &c.

As to pruning-knives, two or three different sizes are requisite in order to enable us to prune neatly; a strong one for cutting out larger branches, shoots, &c. and a small one for the more exact pruning among the smaller branches and shoots of peach and nectarine-trees, &c. These knives are generally made curving at the point; they should not be too long, broad, or clumsey, but have rather a shortish narrow blade, and but very moderately hooked at the point, for when too crooked they are apt to hang in the wood, and not cut clean; it is also proper to be furnished with a strong thick-backed knife, to use by way of a chissel occasionally, in cutting out any hard stubborn stumps, &c. placing the edge on the wood, and with your nailing hammer strike the back of it, and it will readily cut through even and smooth.

Pruning hand-saws are proper for cutting out any large branch too thick and stubborn for the knife; they should be of moderate sizes, one of which should be quite small and narrow, in order to introduce it occasionally between the forks and the branches, to cut to exactness.

As saws generally leave the cut rough, it is proper to smooth it with a knife or a pruning chissel.

Pruning chissels are necessary to use occasionally, both to cut off any thick hard branch or stump, and to smooth cuts after a saw; they should be flat, and from about one to two inches broad; sometimes large strong chissels, fixed on a long pole, are used in pruning or lopping branches from the stems of high standard forest trees, one man holding the chissel against the branch, while another with a large mallet or beetle strikes the end of the pole.

A hand-bill and hatchet are also necessary to use occasionally among larger kinds of the standard trees.

All these pruning tools in their different sizes may be had at the cutlery shops and ironmongers, also of many of the nursery and seedsmen; and as the expence of the whole will be but trifling, every one should furnish himself properly.

PUCCOON. [*Sanguinaria.*] It is a native of most of the northern parts of America, where it grows plentifully in the woods; and in the spring, before the leaves of the trees come out, the surface of the ground is, in many places covered with the flowers, which have some resemblance to our Wood Anemone, but they have short naked pedicles, each supporting one flower at the top. Some of these flowers will have ten or twelve petals, so that they appear to have a double range of leaves, which has occasioned their being termed double flowers. The roots of this plant are tuberous, and the whole plant has a yellow juice, which the Indians use to paint themselves with.

This plant is hardy enough to live in the open air in England, but it should be planted in a loose soil and a sheltered situation, not too much exposed to the sun. It is propagated by the roots, which may be taken up and parted every other year; the best time for doing of this is in September, that the roots may have time to send out fibres before the hard frost sets in. The flowers of this plant appear in April, and when they decay, the green leaves come out, which will continue till Midsummer; then they decay, and the roots remain inactive till the following autumn; so that unless the roots are marked, it will be pretty difficult to find them, after their leaves decay, for they are of a dirty brown colour on the outside, so are not easily distinguished from the earth.

PUCK-BALL, a species of mushroom, full of dust.

PULSE, a term applied to all leguminous plants, as beans, peas, tares, &c.

PUMKIN. Gourd.

PURGING. See PHYSIC.

PURGING-NUT. See PHYSIC-NUT.

PURGING-FLAX. See FLAX.

PURGING OILY GRAIN. See OILY GRAIN.

PURSLANE. [*Portulaca.*] This is a sallad herb propagated from seeds, which may be sown upon beds of light rich earth during any of the summer months; but if you intend to have it early in the season, it should be sown upon a hot-bed, for it is too tender to be sown in the open air before April, and then it must be in a warm situation. This seed is very small, so that a little of it will be sufficient to supply a family. There is no other culture which this plant requires, but to keep it clear from weeds, and in dry weather

ther to water it two or three times a week. In warm weather this plant will be fit for uſe in ſix weeks after ſowing; ſo that in order to continue a ſucceſſion of it, you ſhould ſow it at three or four different ſeaſons, allowing a fortnight or three weeks between each ſowing, which will be ſufficient to laſt the whole ſummer, while it is proper to be eaten; for being of a very cold nature, it is unſafe to be eaten, except in the heat of ſummer in England; for which reaſon it is not to any purpoſe to ſow it upon a hot-bed, ſince it will come early enough for uſe in the open air. If the ſeeds are intended to be ſaved, a ſufficient number of the earlieſt plants ſhould be eſt for this purpoſe, drawing out all thoſe which are weak, or have ſmall leaves, from among them; and when the ſeeds are ripe, the plants ſhould be cut up, and ſpread upon cloths in the ſun to dry, and then the ſeeds may be eaſily beaten out and ſifted, to clear it from the leaves and ſeed-veſſels.

See PURSLANE, a ſpecies of Orach.

PYRACANTHA. The ever-green hawthorn.

Q.

QUAKING GRASS. [*Gramen Maximum.*] A large ſpecies of graſs, riſing from fourteen inches to two feet high, with looſe panicles, ſhaken by every wind.

QUARTER. A fourth part. A quantity of corn containing eight buſhels, or one-fifth of a load.

Falſe QUARTER. A falſe quarter is a reft or chink in the quarter of the hoof, from top to bottom; it happens generally on the inſide, that being the weakeſt and the thinneſt, and proceeds from the dryneſs of the hoof, but eſpecially when a horſe is ridden in dry, ſandy, or ſtony ground, in hot weather, or in froſty weather, when the ways are flinty and hard: It is likewiſe cauſed by bad ſhoeing, and all the other accidents whereby a horſe becomes hoof-bound, for the narrowneſs of the heels and brittleneſs of the quarters continually expoſe a horſe to all the ſaid accidents.

This accident is both dangerous and painful, for as often as a horſe ſets his foot to the ground the chink widens, and when he lifts it up, the ſharp edges of the divided hoof wound the tender fleſh that covers the coffin-bone, which is, for the moſt part, followed with blood, and it muſt of courſe be apt to render a horſe lame, as it is very difficult to form a re-union.

The uſual method taken to remedy this imperfection is, by cutting off that part of the ſhoe which lies upon the chink, that it may be wholly uncovered; then with a drawing iron to open the rift to the quick, filling it up in all parts with a rowel of hurds dipt in turpentine, wax, and ſheep's ſuet, molten together, renewing it every day until the ſeam is filled up; after it is cloſed in the top, or upper part, it is uſual to draw the place betwixt the hoof and the cronet, which, by ſoftening the hoof, and bringing a moiſture into it, cauſes it to grow the faſter, and ſhoot downwards. But there are ſome who ſear the cronet above the crack, without piercing the ſkin juſt where the hoof begins; and with another iron ſear the chink about the middle of the hoof, which ſucceeds very well, if care be taken to keep the hoof moiſt with applications of tar, honey, and greaſe. Some pour aqua-fortis into the rift when the pain is violent, to deaden the part, making a border of wax on each ſide to hinder it from ſpoiling the reſt of the hoof; and there are others who prepare a flat piece of wood about an inch in breadth, but at the ſame time ſo ſlender, that it will bend like a hoop, and of a ſufficient length to go twice round the hoof; and having firſt drawn the whole length of the cleft, they apply turpentine, pitch, and ſuet,

molten together, to the ſore, and faſten the hoof with pieces of liſt or filleting. This is a contrivance to anſwer inſtead of bandage, to keep the chink united, and to prevent it from jarring when the foot is moved, which is, indeed, very reaſonable, for the leaſt motion will be apt to diſcompoſe the tender ſubſtance that grows up in the cleft, and cauſe impoſthumation, which will again open the hoof. But I am of opinion, inſtead of this troubleſome way, the following method will be found more eaſy and ſucceſsful:

Firſt, draw the whole length of the cleft gently with your drawing iron, then anoint the hoof with tar, honey, and ſuet, molten together as directed, for nothing can be more proper for the hoof, and lay a thin pledgit dipt in the ſame along the cleft; after this, take of rope-yarn, ſuch as the ſailors uſe, which is no other than hemp moiſtened in melted pitch and tar, and ſpun looſe; apply the yarn all down the hoof, beginning at the cronet, and deſcend downwards, one lay after another, as cloſe as the binding of the hoops of wine-caſks, laying a ſmooth pledgit of flax behind, to keep it from fretting the heel. This ſhould be opened once in three or four days, that the cleft may be dreſt; and to prevent any inconveniency that can happen by the opening, a thin ſtaple may be alſo contrived with points like horſe-ſhoe nails, caſt off obliquely, to take a ſlender hold, the plate of it croſſing the cleft where part of the ſhoe is cut off, and the nails coming out on each ſide the cleft on the upper part, to be rivetted as the other nails. By this method a cleft in any part of the hoof may eaſily be cured, if the horſe be not very old and diſeaſed.

QUEEN *of the Meadows*. See Meadow-ſweet.

QUICK, or *Quickſet-Hedge*, A general name for all hedges, of whatever ſorts of plants they are compoſed, to diſtinguiſh them from dead hedges; but, in a more confined ſenſe of the word, it is applied to the white or hawthorn, the ſets or young plants of which are raiſed by the nurſery gardeners for ſale. *See Plate*

QUICKBEAM. See SERVICE.

QUINCUNX, A diſpoſition of trees originally formed into a ſquare, conſiſting of five trees, one at each corner, and a fifth in the middle; which diſpoſition often repeated forms a regular grove, and then viewed by an angle of the ſquare or parallelogram, repreſents equal and parallel alleys.

QUINCE-TREE. [*Cydonia.*] The ſpecies are, 1. The Pear Quince. 2. The Apple Quince. 3. The Portugal Quince. And 4. The eatable Quince.

All the ſorts are eaſily propagated either by layers, ſuckers, or cuttings; which muſt be planted in a moiſt ſoil. Thoſe raiſed from ſuckers are ſeldom ſo well rooted as thoſe which are obtained from cuttings or layers, and are ſubject to produce ſuckers again in greater plenty, which is not ſo proper for fruit-bearing trees. The cuttings ſhould be planted early in the autumn on a moiſt border. The ſecond year after they ſhould be removed into a nurſery at three feet diſtance row from row, and one foot aſunder in the rows, where they muſt be managed as was directed for Apples. In two years time theſe trees will be fit to tranſplant, where they are to remain for good; which ſhould be either by the ſide of a ditch, river, or ſome other moiſt place, where they will produce a greater plenty, and much larger fruit than in a dry ſoil; though thoſe in the dry ſoil will be better taſted, and earlier ripe. The trees require very little pruning; the chief thing to be obſerved is, to keep their ſtems clear from ſuckers, and cut off ſuch branches as croſs each other; likewiſe all upright luxuriant ſhoots from the middle of the tree ſhould be taken entirely out, that the head may not be too much crouded with wood, which is of ill conſequence to all ſorts of fruit-trees. If they are propagated by budding, or grafting upon ſtocks raiſed by cuttings, to multiply the beſt ſorts, the trees ſo raiſed will bear fruit much ſooner and be more fruitful, than thoſe which come from ſuckers or layers.

Quince ſtocks are alſo in great eſteem for to graft and bud pears on, which on a moiſt ſoil will greatly improve ſome ſorts, eſpecially thoſe deſigned for walls and eſpaliers: for the trees upon theſe ſtocks do not ſhoot ſo vigorouſly as thoſe upon free ſtocks, and therefore may be kept in leſs com-

paſs,

paſs, and are ſooner diſpoſed to bear fruit: but hard winter fruits do not ſucceed ſo well upon theſe ſtocks, their fruit being very ſubject to crack, and are commonly ſtony, eſpecially all the breaking pears, but more eſpecially if they are planted in dry ground; therefore theſe ſtocks are only proper for the melting pears, and for a moiſt ſoil. The beſt ſtocks are thoſe which are raiſed from cuttings or layers.

QUIT-RENT, a ſmall rent payable by the tenants of moſt manors, whereby the tenant is quit or free from all other ſervices, and is ſaid to be an acknowledgment of their ſubjection to the lord of the manor.

QUITTOR, an ulcer formed between the hair and hoof, uſually on the inſide quarter of a horſe's foot; it often ariſes from treads and bruiſes, ſometimes from gravel, which by working its way upwards, lodges about the coronet: if it is only ſuperficial, it may be cured with cleanſing dreſſings, bathing the coronet every day with ſpirit of wine, and dreſſing the ſore with precipitate medicine.

But if the matter forms itſelf a lodgment under the hoof, there is no way then to come at the ulcer, but by taking off part of the hoof; and if this be done artfully and well, the cure may be effected without danger.

When the matter happens to be lodged near the quarter, the farrier is ſometimes obliged to take off the quarter of the hoof, and the cure is then for the moſt part but palliative; for when the quarter grows up it leaves a pretty large ſeam, which weakens the foot: This is what is called a falſe quarter, and a horſe with this defect ſeldom gets quite ſound.

If the matter, by its confinement, has rotted the coffin-bone, which is of ſo ſoft and ſpongy a nature, that it ſoon becomes ſo, you muſt enlarge the opening, cut away the rotten fleſh, and apply the actual cautery, or hot iron pointed pyramidically, and dreſs the bone with doſſils of lint, dipped in tincture of myrrh, and the wound with the green, or precipitate ointment. When the ſore is not enlarged by the knife, which is the beſt, and leaſt painful method, pieces of ſublimate are generally applied, which bring out with them cores, or lumps of fleſh: Blue vitriol powdered, and mixed with a few drops of the oil, is uſed alſo for this purpoſe, and is ſaid to act as effectually, and with leſs pain and danger.

R.

RABBIT. The rabbit is a ſmall animal, and may appear of ſmall conſequence to the farmer who breeds other animals of more profit, yet this is very well worth his regarding as a part of his ſtock. It has the recommendation of the goat, that it will thrive where nothing elſe can live; and the ſame advantage as the hog, in the great increaſe by young.

Both the buck and doe rabbit are eager for copulation, and they muſt not be reſtrained. The does go but a month with young; and as ſoon as they have brought forth they are ready to copulate again. When they run wild they get together in a very little time; and when they are kept tame and ſeparate, they muſt be put together ſoon after the bringing forth, otherwiſe the doe grows ſullen, and will take little or no care of her young ones.

The rabbit is diſtinguiſhed into two kinds, the wild and the tame. Theſe are kept in a diſtinct manner; the wild running looſe, and burrowing themſelves holes in the ground, and the tame being kept in houſes, huts, or boxes.

Both kinds yield a very large profit, though under different management.

The wild rabbit breeds faſt and freely in warrens, or other places where there is room and a free air. They will thrive upon the pooreſt, and barreneſt, gravelly, ſtony, or ſandy ſoils; by ſtony we mean ſuch as are full of ſmall ſtones, not the rocky, for in theſe laſt they cannot burrow. In theſe ſort of grounds the farmer will find great advantage from the breeding of rabbits, either altogether or occaſionally; for in the latter way they improve theſe barren lands extremely by their dung and urine, and render the worſt of them fit for raiſing good crops of rye; and ſuch as are but a little better, for the other kinds of corn.

The diſtinction between wild and tame rabbits is not founded in nature, but on our own practice; for the wild kinds may be as well kept tame as the others. They are uſed to a kind of impriſonment in their holes, and for that reaſon they bear confinement better than moſt other creatures.

As to the wild kind there is properly but one breed of them, and all the direction that is needful in the choice is, that ſuch as are taken to begin a ſtock, be large and big bodied, with a good deep fur that hangs faſt upon their backs, and with ſtout limbs. The huſbandman that has waſte ground in his hands, that is fenced well, and not with live hedges, ſhould never omit this part of his ſtock, for the very worſt of his ground will do, and the advantage he receives from them will be very great.

A ſmall number is ſufficient to be firſt turned in; for of all creatures uſeful to mankind, they are the greateſt breeders.

Experience ſhews that the wild rabbit ſucceeds better in ſome places than others; the young growing up much quicker, and the fleſh being finer and better taſted. The reaſon of this is to be ſearched in the ſoil and the produce; and this may teach the huſbandman on which of ſuch grounds as ſeem proper, it will be moſt to his benefit to breed them.

In general, the ſhorter and ſcantier the graſs, the better is the taſte of the rabbit. The drier the ground the better they ſucceed; where there is much water, they never are well-flavoured.

Of all creatures, water is the leaſt neceſſary to a rabbit, for we ſee the tame ones will live very well altogether without it, on moiſt food. Where the ſoil is drieſt, the air fineſt, and the water that there is in the way is running and clear, there the rabbits may reaſonably be expected to ſucceed beſt. Damp grounds, and ſtanding waters, being the greateſt diſadvantage to this creature.

The common rabbit will very freely be kept tame; for it has been found, many years ſince, that thoſe which we uſually underſtand as tame rabbits, will live very well wild, eſpecially the hardier kinds. This is a conſideration of ſome conſequence, becauſe there is one of the tame kinds that is, in every reſpect, better than the common wild one. This is that which is known by the name of the ſilver-haired rabbit. It will live and thrive as well wild as the common ſort; and it is always better taſted and fairer to the eye, ſo that it brings a larger price. The ſkin alſo is of much more value, and the demand for it among the furriers is conſtant and certain.

For theſe reaſons it is, in many caſes, adviſable to breed this kind wild inſtead of the other: but though it often is ſo, it is not always. This, though as hardy as the other, requires a better ſupply of food, and is poor, and of little value upon thoſe barren and heathy lands, on which the common wild rabbit ſucceeds very well.

The proper place for this kind is a park, where they may run at liberty among the deer and other cattle, and where there is good graſs, though not rank, upon the ground; the other is the proper kind for the miſerableſt and pooreſt lands.

Tame rabbits are diſtinguiſhed into ſeveral kinds, according to their colours and other accidental diſtinctions; but the differences are not great, nor is there any material point of profit attending the choice of one or the other ſort.

The ſilver-haired rabbit laſt-named is a very good and profitable kind to be kept tame, becauſe of the advantage of the ſkin. The Dutch rabbit is a much

a much larger kind, and is very good for the table, but the ſkin is of leſs value. The moſt beautiful, when kept cleanly, is the white long-haired rabbit; this is, by ſome, called the Turkey rabbit, from the place from whence we firſt had it; and by others the Shagge rabbit, from the length of its hair. This is a very good kind to breed tame alſo, but if not kept very clean, it is ſubject to a diſorder not unlike what the doctors call the Plica Polonica; the hair growing together in clots and cakes, and this often in ſuch a manner, that blood veſſels from the ſkin run up amongſt the clots, and they will bleed on being cut off.

It is not very material which of theſe, or of the ſeveral other kinds that it is the cuſtom to breed at this time, the farmer chooſes; for with proper management, any of them will turn to very good account; but whichever ſort it be, let him take a more ſtrict and critical care in the choice, than he has been directed to do in thoſe which are to run wild, for a great deal more depends upon it in this kind, than in thoſe. The ſkin here is of much conſequence, and the diſtinctions in this are nice, and never enough to be regarded in the choice for breed.

In the ſilver-haired rabbit, for inſtance, let the huſbandman take care to chooſe his buck of the true kind and colour, for on this, more than on the doe, will depend the value of the breed. Let the fur be thick, deep, ſmooth, and gloſſy; and let the ground colour be black, with a moderate quantity of white or ſilvery hair. It is proper to chooſe them rather too dark for breeding, becauſe the colour in the young is more apt to grow paler than deeper; and a ſilver ſkin that is too dark, always will bring a better price than one that is too light.

In the ſame manner let the fur of the ſeveral other kinds be examined, when they are choſen for breeding; for the reſt of the directions already given for the choice of the wild, hold good here; the largeſt and beſt ſhaped being to be fixed upon. In the ſame manner as theſe rabbits were firſt choſen, let them be picked out from time to time for keeping, to preſerve the breed; for upon this will depend a great part of the advantage.

The farmer having thus ſelected his ſtock of theſe little animals, is to take his choice of the ſeveral methods which are in uſe for the breeding and keeping of them. Theſe are many, and among them ſome allow more and ſome leſs liberty to the animal; in general, ſuch as allow moſt freedom, even in this way, and moſt air, are beſt; for though the rabbit will bear confinement very well, yet it will thrive beſt where that is leaſt ſtrict.

Cleanlineſs alſo is a very great article in the breeding of theſe, as well as other creatures, and where the confinement is leaſt ſtrict, there is naturally leaſt foulneſs. The dung and urine of the rabbit have a very diſagreeable and rank ſmell; and nothing prejudices the creature more than being kept naſty with theſe about it.

The general way of keeping tame rabbits is in a kind of boxes made for this purpoſe: others keep them in pits; but it would be a much better way to keep them in buildings made for that purpoſe. This might be done at a ſmall expence, and would anſwer very well; for it would be cleanlier and more wholeſome than any other way. The boxes are too ſmall, and therefore are apt to grow naſty, and the pits are liable to be damp, which, as we have obſerved already, is one of the worſt things that can happen in a place where rabbits are to breed.

The boxes, for ſuch as prefer them, ſhou'd be made of thin wainſcot, and divided into larger and ſmaller rooms, two for each rabbit. One of theſe ſhould be for eating, and the other for lodging and bringing forth the young. That for eating ſhould be the larger, and ſhould have a grate before it for light, and the ſmaller ſhould be entirely dark. Before both there muſt be placed a trough with the food; and thus the creature will live, thrive, breed, and fatten: But there wants free air, and it is very difficult to keep them cleanly, ſo that although this method may do, the others are ſure to anſwer better, when they are managed properly.

Theſe

Thoſe who uſe this method by boxes, ſet them one above another, in ſo many ſtories, and keep the bucks by themſelves, and the does by themſelves, unleſs it be ſuch does as have not bred, and with thoſe they lodge a buck in the ſame box. The common ſize of theſe boxes is two feet long, the ſame in breadth, and a foot high. It is ſurpriſing to ſee ſo large a creature as a rabbit live ſo well as it does in this ſmall compaſs, but it will always do better when it has more room.

The method of keeping them in pits is preferable, and is thus. A dry ſoil is to be fixed upon for this purpoſe, and the pit is to be dug ſeven foot deep, and of a bigneſs proportioned to the number intended to be kept in it. This muſt be walled up on the inſide, only leaving ſpaces for them to make their burrows. A ſandy ſoil, not too deſtitute of other earth, will anſwer for the purpoſe of theſe pits better than any other. At one end an hollow place is to be made for the buck to reſt in, he muſt be chained to a ſtump, and have room only to go to the rack where the food is placed in theſe pits, and thence to his den to reſt. At the other parts of the pit, out of the reach of the buck, are to be the places left for the does to make their ſlops or burrows. The rack is to be placed near the middle of the pit, between the bucks and does, he being on one ſide by himſelf, and they on the other.

Three does may very well be kept in the ſame pit with one buck, and the pit for this purpoſe ſhould be about ten foot ſquare. Some make them larger, and keep more bucks than one, but it is a better practice to make more of them, only allowing one buck and two or three does to each.

This will naturally appear to thoſe who are not acquainted with theſe things, a large proviſion for three or four rabbits, and a great expence for ſo few ſmall animals; but thoſe who have kept theſe creatures know that it very well anſwers the expence. Provided the pit be dry they live more comfortably by much in it, than in the other way of boxes; and the produce is ſo great that one buck and three does will bring a hundred and fifty, two hundred, or more young ones in a year.

The young are to be left under the care of the dam till they are about a month old, and they are then to be taken from her either for ſale or the table; or if there be no demand either of theſe ways for them, they muſt be put into ſome pit, or other place made for that purpoſe.

The ſame practice is to be obſerved in removing the young, if they are kept in boxes, or whatever other way. In whatever manner the old ones are kept, when they have brought forth a ſecond brood, the firſt is to be taken away, and reared up elſewhere. The common way in this caſe is, to remove them to other boxes, keeping thoſe of ſeveral broods of about the ſame age together; and thus they are to be treated in the other way, either rearing them in another pit, or in any manner that is convenient, only allowing them ſome room and air, the more of both the better.

The reaſon of chaining up the buck rabbit in the pit, and of keeping him in a ſeparate box in the other way, is his miſchievous diſpoſition, for he will kill all the young ones. This the does are themſelves ſo ſenſible of, that they, in their natural wild life, hide the young ones, and cloſe up their holes, that the buck may not find them.

The two great requiſites in theſe pits are warmth and dryneſs; their depth, unleſs the ground be very favourable, making them ſubject both to damp and cold, in either of which caſes the rabbits will not breed well.

The moſt profitable time of their breeding is in the depth of winter; and they will never breed at this ſeaſon, at leaſt not ſucceſsfully, unleſs they be kept dry and warm.

It is from the danger of the cold and damp in pits, and becauſe of the want of air in boxes, ſome have been led to think of ſuch other methods as may give rabbits the advantage of both in a fit degree, and yet keep them in ſuch an eaſy and ready way, that they may be always at hand, eaſily fed, tended, and looked after, in every reſpect, and yet have warmth and freedom.

To obtain theſe ſeveral advantages, by means of which tame rabbits of the

the beſt kinds would be kept in the greateſt perfection of health and beauty, and to the greateſt advantage of breeding, let the huſbandman erect a building purpoſely for them.

Having choſen his rabbits for breed, let him fix upon a proper ſpot of ground for his edifice, and draw the plan of it of ſuch extent as to contain conveniently the number he ſhall think proper to keep.

Let the ſoil on which he builds this place, be of a dry loamy kind, with a large proportion of ſand in it; for this is the ſort of earth the rabbit loves beſt, and in which it is always moſt healthy.

Let the building be ſquare, and run up of wood in a ſlight but yet in a tight manner; and let there be a kind of cloſet carried up at one end.

In each corner of this ſquare let there be a den made for a buck rabbit, and a ſmall poſt driven in, to which faſten him by a chain, in the ſame manner as in the pit. At ſome ſmall diſtance from the corners let there be racks ſet up for food, which ſhall be within reach of the bucks, and one or two others in the middle.

When the houſe is thus prepared, let the bucks be chained in their places, and the does turned in. They will all live much more comfortably in this houſe than in the pits; and at the times of taking away their young, let them be put into the ſmaller rooms or cloſets, prepared for that purpoſe, where they will thrive and live very comfortably. A building of this kind will coſt little, and the profit ariſing from the rabbits will be much greater than in any other way, becauſe they will breed freely throughout the winter; and neither the old nor the young will be ſubject to diſeaſes. Both the old and the young will be, in this manner alſo, defended better againſt vermin than by any other way whatſoever.

The feeding of the rabbit is an article of great conſequence with regard to its health and increaſe, and it is leſs underſtood than moſt things of the like kind. Some feed them in a manner entirely with wet meat, others almoſt altogether with dry: Now, both theſe methods are wrong. A mixture, or diverſity of food, keeps them better in health and vigour, and occaſions their breeding faſter, and more ſucceſsfully than any other kind.

The dry meat of the rabbit is hay, oats, and bran. Their moiſt or wet food is freſh herbage, or roots, of almoſt any kind, which they will eat with the greateſt eagerneſs, as coleworts, parſley, and others, from the gardens; and ſow-thiſtles, mallows, and the like, from the fields. Now, theſe the huſbandman ſhould give them interchangeably; always obſerving this caution, that when he gives his rabbits dry meat, he muſt ſet them water; and that when they have the freſh or moiſt meat, they have no occaſion for any; the juices of thoſe leaves and herbs ſupplying them with a ſufficient humidity.

It is a common cuſtom with many to cut up the freſh food for their rabbits from under an hedge, taking every kind of herb that offers, ſo it be young, and the rabbits will eat almoſt any; but in this ſome caution is neceſſary, for the herb hemlock is very common under hedges, and it is poiſonous; the rabbit will eat it greedily, but it dies by the effect.

The hay that is given to rabbits muſt be the fineſt, ſweeteſt, and ſhorteſt, that can be got. Nor let any one grudge the expence, for they eat but little, ſo that the amount is ſcarce worth conſideration.

This is the beſt and healthieſt food of all others for rabbits, and ſhould be their ſtandard diet, but about once in five days they ſhould have the freſh herbs, which cool and ſcour them. And by this management they will be kept healthful and vigorous; always ready for breeding, and their young will be luſty, ſtrong, and thriving.

Among the other food of the rabbit ſhould be mentioned grains; this is of a middle nature between the moiſt and dry food, and is a very cheap diet; but it is not wholeſome, and is therefore dearer in the end. The rabbits will ſeem to thrive upon it, but there is no food whatſoever that makes them ſo liable to diſeaſes.

In general, the advantage of their dry meat is, that it prevents diſeaſes; and thoſe who commonly keep them upon freſh and moiſt food, as many do, giving them carrots and other eatable

roots among it, would do well to change it for dry meat in wet weather; for moiſt food is the great cauſe of theſe creatures having the rot, and they are moſt of all ſubject to this in damp ſeaſons.

RACK. A wooden frame made to hold hay or fodder for cattle.

RADIATED *Flowers*, ſuch as have ſeveral ſemi-floſcules round a diſk, in form of a radiant ſtar: thoſe which have no ſuch rays, are called *diſcous* flowers.

RADICLE, that part of the ſeeds of plants which upon vegetating becomes its root, and is diſcoverable by the microſcope.

RADISH, the name of a well-known vegetable, and which is commonly cultivated in the kitchen-garden for its root.

Radiſhes are ſown in different ſeaſons, according to the time when they are deſired for uſe. Thoſe ſown in September will be fit to eat at Chriſtmas, if they are not deſtroyed by froſt; but they muſt be uſed whilſt very young, for they ſoon grow hot and ſticky. If ſown towards the end of October, which is commonly the time of ſowing for the earlieſt crops, they will be fit for the table in the beginning of March. Thoſe ſown at Chriſtmas, if the ſeaſon is mild, and the ground in good order, will, if they eſcape the froſt, be fit for eating about the end of March or beginning of April; and by continuing the ſowing once in a fortnight, from the middle of January till the beginning of April, always obſerving to ſow the earlieſt crop in the warmeſt and beſt ſheltered ſituations, and the later ones in a moiſt ſoil and open ſituation, without which they will run up, and grow ſticky, before they are fit for uſe, a regular ſucceſſion of theſe roots may be had throughout the ſeaſon. The tendereſt, and mildeſt to the taſte, are thoſe which have been raiſed in deep, rich, and light mould.

When the radiſhes are come up, and have got five or ſix leaves, they muſt be thinned wherever they ſtand too cloſe; for otherwiſe they will run up in tops, and not increaſe in their roots. Some thin them by hand; but it is much better to uſe a ſmall hoe, which will ſtir the ground, deſtroy the weeds, and promote the growth of the young plants. They may be left about three inches aſunder, if they are intended for drawing up ſmall; but ſix inches will be little enough, if they are to ſtand till they are pretty large.

The kitchen gardeners about London, who pay great prices for their ground, and therefore are obliged to make it produce as many crops as poſſible in the year, ſow carrot-ſeed with their early radiſhes, in order that if the radiſhes are killed ſoon after their coming up, as they ſometimes are, the carrots may remain; for the ſeeds of theſe laſt generally lie in the ground five or ſix weeks before they grow, while thoſe of the radiſhes ſprout in about a fortnight; but when both crops ſucceed, the radiſhes muſt be pulled up while very young, or they will weaken the carrots; ſo that theſe laſt will not be able to ſupport themſelves after the former are gone.

It is alſo the conſtant practice of theſe induſtrious and intelligent men, to ſow ſpinach with their latter crop of radiſhes; for after the radiſhes are taken off, and the ground has been cleared between the plants of ſpinach, theſe laſt will grow up ſo prodigiouſly as to cover the whole ſpace in a fortnight's time: and if this ſpinach is of the broad-leaved kind, it will be larger and fairer than it uſually is when ſown alone; becauſe moſt people are apt to ſow it too thick, when they do not mix it with any other crop.

The ſmall topped, the deep red, the ſcarlet, and the long topped ſtriped radiſh, are the varieties generally cultivated in kitchen gardens. The ſmall topped is moſt commonly preferred, becauſe it takes up the leaſt room; but a ſmall ſpot of ground will furniſh, from each ſowing, as many radiſhes of any kind as can be ſpent in a family while they are good.

The Naples radiſh, which has a very white, round, ſmall, and ſweet root, may be propagated in the ſame manner as the common ſort, excepting that it ſhould not be ſown till the beginning of March, and the plants ſhould be allowed a greater diſtance. It is not very common in this country, and, indeed, its ſeeds are apt to degenerate here.

The white and the black Spaniſh radiſhes

radiſhes will be fit for the table by the end of Auguſt, or the beginning of September, if they are ſown about the middle of July, or a little earlier, and will continue good till the froſt ſpoils them. Theſe ſhould be thinned to a much greater diſtance than any other ſort; for their roots will grow as big as common turnips. If they are drawn out of the ground before a hard froſt comes on, and laid up in dry ſand, in the ſame manner as is practiſed for carrots, they will keep good all the winter.

To ſave the ſeeds of radiſhes, ſome of the ſtraiteſt and beſt-coloured roots ſhould be planted in rows three feet aſunder, and at the diſtance of two feet from each other in the rows, in deep and well dug ground. If the ſeaſon is dry, they muſt be watered from time to time till they have taken root, after which they require no further care but keeping them clear from weeds; nor need theſe be feared after the branching ſeed-ſtalks of the radiſhes have overſpread the ground, as they will ſoon do, in ſuch a manner as to prevent their farther growth.

In this tranſplanting of the radiſhes, an allowance ſhould always be made for bad ſeaſons, becauſe the very ſame plants will not yield a fourth part of the quantity of ſeeds in dry ſeaſons, that they would do in a moiſt ſeaſon.

When the ſeed begins to ripen, it ſhould be carefully guarded from birds, and when it is ripe (which is known by the pods turning brown) it ſhould be cut, dried in the ſun, threſhed out, and laid up in a place where mice cannot come at it.

Horſe-RADISH. See HORSE-*Radiſh*.

RAGS. Woollen rags, and the nippings of the pitch-marks upon ſheep, are a ſingularly good manure. The rags ſhould be chopped ſmall, about an inch or two ſquare, and ſcattered on the earth at the ſecond ploughing; for being thereby covered, they will begin to rot by ſeed-time. They imbibe the moiſture of dews and rain, retain it long, and, as Dr. Home obſerves, thereby keep looſe ſoils in a moiſt ſtate. They coſt about fourpence a buſhel at London, from whence many loads are ſent every year to Dunſtable, which is thirty-three miles, where they are laid even on ſtiff lands, juſt after the ſowing of the corn, allowing to the acre four ſacks of ſix buſhels each.

RAGWORT, [*Othonna.*] or, as it is called in Yorkſhire, *Seagrim*, is a very pernicious weed.

The Rev. Mr. Camber, of Eaſt-Newton, has obliged the public with the following obſervations on the growth and deſtruction of ragwort, or ſeagrim.

"This plant," ſays he, "has a ſtalk, in its early ſtate, green; but, as it advances in age, inclining to violet, or purple, eſpecially downwards. Its flowers are both yellow, and thick-ſet, and compoſed each of a number of ſmall-pointed leaves. It runs to ſeed in the latter end of ſummer. The ſmell, both of the ſtalk and leaves, which are jagged, (whence probably it obtains one name) and the flower itſelf, are offenſive to all animals, I think; for I have obſerved that hardly any creatures feed upon it, except almoſt hungered or ſtarved. I have not indeed obſerved whether or no aſſes reject it.

"Like moſt other weeds, it thrives beſt in the beſt ſoils, either natural or artificial; and I took up a plant of it in my orchard, about two years ago, (with the root) which, when in flower, touched my chin, (my height is about five feet eight or nine inches) and its root, which is round, and thick ſet with taws, was much larger than a new-born child's head: but the uſual dimenſions are much leſs than theſe.

"About four years ago, I obſerved the ſpreading of this weed in that part of this eſtate which was in our own hands. I took notice, that neither cows nor horſes eat it; and when I ſmelled it, I ceaſed to wonder that they did not. It was obvious to remark, that a weed ſo bulky as this, and ſo groſs, muſt extract much nouriſhment from the earth, and that it was adviſable to get rid of it as faſt as poſſible. The moſt eaſy method was mowing. I therefore ordered a ſervant to mow theſe weeds in the paſtures as near to the ground as he could: and I hoped that the common mowing in the meadows would be ſufficient to deſtroy them: but I ſoon found my miſtake, for in a very few weeks theſe offenſive ſtran-

gers shot up again into a stalk and leaf, and even flower, though all in much smaller size than before, but with this disagreeable circumstance, that the root was so far from being injured with the scythe, that for one stalk several arose, and the root seemed to have gained new vigour from the wound.

"I now applied myself to plucking up by the roots these odious inmates, and found new difficulties; for while the ground was dry, as it usually is in the latter end of summer, I found the stalks of such of the seagrims as were longest, and afforded the tightest grasp, either break in plucking, and leave the root in the ground entirely, or at best bring with it only a small part of the root; and when the wet weather came on, and loosened the ground, and made it possible, or even easy, to bring away the whole ball of the root, yet the season of seeding was come on also, and the earliest ripe seeds had dispersed themselves, and produced an assurance of a larger crop for succeeding years than the most careful plucking of the present crop could destroy.

"But if these were the difficulties which attended my attempts to eradicate those seagrims, which had happened not to be mowed, I was much more embarrassed by those which had been; for here it was impossible to get any such fast hold, as to pluck them up with much, or even any root.

"I now applied myself to enquire what gentlemen or farmers were plagued with this weed, and what methods they had tried with success to destroy it.

"I was told by a gentleman in my own neighbourhood, that Sir G. Cayley, bart. of Brompton, near Scarborough, had been plagued with this weed, and had pursued the method of plucking with success.

"Animated by this assurance, I resolved to pursue this method with great attention; and as it seemed to be a work which required great care, both in the choice of season and manner of plucking, I resolved not to depute the work to others, but to endeavour to clear a spot in my cow-pasture with my own hands, that, if my labour succeeded, I might employ others to follow the same method under my own eye in the rest of this pasture.

"Accordingly, in the evenings of the summer, or rather autumn, of 1762, after showers, I applied myself to this work: and by the help of a pair of strong gloves, and a tight grasp, I brought up almost every root, in a space of about two hundred yards square, whole; so that I had good hopes I should see this spot clear in the succeeding summer. It is true, I saw leaves of the species of this weed, and of a very vivid green too, around the plants which I pulled up; but as I reasonably concluded these to be fed by the saws which spread themselves from the main root, so I (methought reasonably) concluded also, that this main root being destroyed, the side saws would die, and consequently these young leaves.

"But how was I disappointed, when, in the summer of 1763, I saw this spot of ground as much over-run with seagrims as any part else of the pasture which had been unpulled!

"Conversing, however, with G. Watson, esq; of New Malton, towards the latter end of summer, on this subject, I was assured by him, that by a repetition of this labour of plucking for some years, he thought he had lessened the number of his seagrims, though they were still numerous. Urged by this example, I had gone through the whole of my pasture, which is about ten acres, and keeps five cows, at the latter end of last summer, of 1763, with the same care as was used to a small part of it in 1762; yet am I not elated with much hope of success; for a little plot before my garden (in which my horses run, and which was managed with still more accuracy on account of the odious appearance of the seagrims from my windows) seems to threaten another considerable crop.

"As I did not confine my enquiries about the method of destroying this hateful weed to any one rank of men, I was told by an honest quaker, a farmer in my neighbourhood, that he had found turning of sheep in winter into his cow-pasture the only effectual method of destroying this hateful weed.

"I thought

" I thought this method very likely to ſucceed: for ſheep are ſuch cloſe eaters, that I have known them deſtroy whole beds of the rankeſt docks, which could not be killed by any other means.

" I have not been able to try this experiment conſiderably; for, as I am raiſing quick fences, both in my meadow and paſture, I keep no ſheep. I have, however, occaſionally admitted ſome of my tenants ſheep into the ſmall plot before my garden this winter; and, upon an accurate examination this morning, I do not entertain any ſanguine hopes of great ſucceſs from this method. I find that many of the young leaves of this weed, now level with the ſurface of the ground, are untouched by the ſheep; and that ſuch others as appear bitten by them, do not ſeem in a dying condition.

" The truth ſeems to me, that ſheep, though they may not have the ſame averſion to this weed as horſes and cows, yet are far from being fond of it; and if any great ſucceſs is to be hoped for from their bite, (which may prepare beds for the water, and ſo decay the root) the ſheep ſhould be folded pretty cloſe upon it, and obliged to eat it near, and at ſuch a ſeaſon that the winter-rains may have time to work its deſtruction. And ſuch a method, if carefully purſued, ſeems to be moſt probable for the extirpation of this pernicious weed.

" If the method of plucking is followed, I would ſubjoin ſome cautions:

" Firſt, In order to prevent the large plants from ſeeding, I would adviſe to cut off all the tops, and the tops only, when the flowers begin to die, that then good hold of the ſtalk may be gotten.

" Secondly, I would defer the plucking till the rains have moiſtened the ground ſufficiently to bring up the whole main root.

" Thirdly, I recommend ſtriking the root ſo brought up againſt the ground, in order to diſperſe the earth which adheres to it, by way of manure.

" Fourthly, I always pile the plants thus pulled up and cleanſed from the earth, that, if the ſeaſon proves favourable, they may be burnt, and the aſhes ariſing from them ſpread on the ground; or if this cannot be conveniently done, (though it is much the better method, and may, with a ſufficient fire, be done when they are ever ſo green) they may be left to rot and manure the ſoil.

" The groſſneſs, and even ſtench, of this weed, is a proof of the great quantity of ſalts it contains; and in the ſame proportion as any plant exhauſts the ground of its ſalts it repays when reduced to manure. There can, however, be no queſtion, but whilſt weeds are left to rot, a great quantity of the ſalts, which by burning would mingle with the ſoil, are carried into the air.

" I ſuppoſe your readers will be curious to know in what manner I account for the ſudden appearance of theſe ſeagrims in vaſt abundance, in this eſtate, where they were hardly ever known before.

" I will give you an account, which I dare ſay, you will eſteem perfectly ſatisfactory. About eight years ago I undertook to improve a piece of ground of about fourteen acres, which was over-run with thorns of both ſorts, brambles, broom, and furze.

" When I had got it cleared of all this traſh, my next buſineſs was to pare the hills off, and pile them, and, after a winter's mellowing, to break and ſpread them with a mixture of lime, and all other kinds of manure which I could collect. As the ſoil was very poor, having been exhauſted by the great quantity of traſh it had nouriſhed for many years, I was not yet ſatisfied, but reſolved to take the advantage of the firſt dry ſummer, to lead out the riches of a pond of about thirty yards long, and half as many broad, which had been occupied by a great number of geeſe, &c. and never thoroughly cleaned during near thirty years. I got through this work, tho' at a great expence, being obliged to employ a conſiderable number of draughts, leſt the rains ſhould make the mud too thin, or the heat bake it too much, the mud being for a conſiderable ſpace a yard perpendicular.

" All this mud I laid on my newly improved ground, except a few cart-loads, which were brought and laid by the wall of a kitchen-garden, to be mingled with the other ſoil.

" I had divided my improved ground,

reſerving about four acres for meadow. Behold! the ſucceeding year gave me a crop of ſeagrims both in my new meadow, my new cow-paſture, and the plot of ground in which the mud for my garden had been ſcattered; and more particularly in thoſe parts where the ground had been broke, either to ſtub the thorns, &c. or to take away the hills, while the adjoining ground on every ſide was free from this pernicious weed.

"As I knew little or nothing of this weed, I ſuffered it to ſeed before I took any neceſſary precautions for its deſtruction. The ſucceeding year preſented me with a much larger crop, and I have been ever ſince ſtruggling for its extirpation, and have the mortification to ſee its encroachments on adjoining grounds by the ſeeds which winds have carried.

"This fact, and another of the ſame kind, in a piece of ground which I improved ſince, at ſome diſtance from the former, have confirmed me in an opinion, which I before thought very probable, viz. "That all ſoils are originally impregnated with the ſeeds of almoſt all graſſes and weeds, (though of ſome in greater quantities) which only want a proper ſtirring and manure to awaken them to vegetation, though at the expence of one another, ſome being ſuffocated by that proceſs which gives life to the others."

"I will add another ſtriking inſtance in confirmation of this ſentiment, notorious in this neighbourhood.

"A conſiderable quantity of the park at Gilling was over-run with brakes and moſs, and that wretched graſs which grows in ſuch company. Lord Fairfax, the owner, finding that he could not have his veniſon fat as it ought to be, deſtroyed his park, and applied himſelf ſeriouſly to the improvement of it at a vaſt expence. In courſe of time by due tillage he brought this worſt part of it to be not only good corn land, but even tolerable, though coarſiſh, meadow and paſture; yet both of them thick ſet with ſeagrims, a weed never ſeen there till the quantity of lime which his Lordſhip put into that poor ſoil had warmed it ſufficiently.

"I have only to add, on this ſubject, that I am perſuaded ſeagrim does more harm in meadow than paſture land; for in the latter it only exhauſts the ground on which it ſtands to no good purpoſe; but in the former it communicates its diſagreeable ſtench in the ſweat to the good hay, and deſtroys its ſweetneſs. I adviſe, therefore, that hay-makers be ordered to throw it with their rake-ſhafts out of the ſwathe whenever they meet with it." *Muſeum Ruſticum*, vol. v. p. 117.

RAGGED ROBIN. [*Lychnis Floſcuculi.*] A ſpecies of campion common in moiſt meadows, and by the ſides of rivers.

RAMPION, A ſpecies of campanula or bell-flower. The crimſon rampion is greatly prized by the curious, for the beauty of its rich crimſon flowers, which exceed all the flowers we have yet ſeen in the deepneſs of its colour; and theſe commonly when their roots are ſtrong, produce large ſpikes of theſe flowers, which continue a long time in beauty, and make a moſt magnificent ſhew among other flowers. The time of their flowering is commonly in July or Auguſt; and if the autumn proves very favourable, they will ſometimes produce good ſeeds in England. Theſe plants are natives of Virginia and Carolina, where they grow by the ſides of rivulets, and make a moſt beautiful appearance; from whence the ſeeds are often ſent to England. Theſe ſeeds commonly arrive here in the ſpring, at which time they ſhould be ſown in pots filled with light earth, and but juſt covered over; for, if the ſeeds are buried deep, they will not grow. Theſe pots ſhould be placed under a frame, to defend them from the cold, until the ſeaſon is a little advanced; but they ſhould not be placed on an hot-bed, which will alſo deſtroy the ſeeds.

When the weather is warm, towards the middle of April, theſe pots ſhould be placed in the open air, in a ſituation where they may have the morning ſun till twelve o'clock, obſerving to water them conſtantly in dry weather; and when the plants are come up, and are grown pretty ſtrong, they ſhould be tranſplanted each into a ſmall pot filled with freſh light earth, and placed in the ſame ſituation, obſerving to water them in dry weather; and,

and, in winter, they ſhould be placed under an hot-bed frame, where they may be ſheltered from ſevere froſts; but, in mild weather, they ſhould be as much expoſed to the open air as poſſible.

The March following theſe plants ſhould be put into larger pots filled with the ſame freſh earth, and placed, as before, to the morning ſun; obſerving to water them in dry weather, which will cauſe them to flower ſtrong the autumn following.

Theſe plants are alſo propagated by parting of their roots; the beſt ſeaſon for which is, either ſoon after they are paſt flower, or in March; obſerving to water and manage them as hath been directed for the ſeedling plants both in winter and ſummer.

RAMSONS, Broad-leaved wild garlick.

RANUNCULUS. There are eight or ten ſpecies of the ranunculus, ſome growing wild in different places; but the moſt beautiful is the Perſian, or Turkey ranunculus, the varieties of which are almoſt numberleſs, but almoſt all flower in April or May.

The beds in which the Perſian ranunculus roots are planted, ſhould be made with freſh light ſandy earth, at leaſt three feet deep; the beſt ſoil for them may be compoſed in this manner, viz. take a quantity of freſh earth from a rich upland paſture, about ſix inches deep, together with the green ſward: this ſhould be laid in heaps to rot for twelve months before it is mixed, obſerving to turn it over very often to ſweeten it, and break the clods; to this you ſhould add a fourth part of very rotten neat's dung, and a proportionable quantity of ſea or drift ſand, according as the earth is lighter or ſtiffer; if it be light, and inclining to a ſand, there ſhould be no ſand added; but if it be an hazel loam, one load of ſand will be ſufficient for eight loads of earth; but if the earth be ſtrong and heavy, the ſand ſhould be added in a greater proportion: this ſhould be mixed ſix or eight months before it is uſed, and you ſhould often turn it over, in order to unite their parts well together, before it is put into the beds.

The depth which this ſhould be laid in the beds muſt be about three feet; this ſhould be below the ſurface, in proportion to the dryneſs or moiſture of the place where they are ſituated; which, in dry ground, ſhould be two feet eight inches below the ſurface, and the beds raiſed four inches above; but in a moiſt place they ſhould be two feet four inches below, and eight above the ground; and, in this caſe, it will be very proper to lay ſome rubbiſh and ſtones at the bottom of each bed, to drain off the moiſture; and if upon this, at the bottom of the beds, ſome very rotten neat's-dung be laid two or three inches thick, the roots will reach this in the ſpring, and the flowers will be fairer. This earth I would by no means adviſe to be ſkreened very fine; only turning it over each time, you ſhould be careful to break the clods, and throw out all large ſtones, which will be ſufficient; for if it is made very fine, when the great rains in winter come on, it will cauſe the earth to bind into one ſolid lump, whereby the moiſture will be detained, and the roots, not being able to extend their tender fibres, will rot.

The beds being thus prepared ſhould lie a fortnight to ſettle, before the roots are planted, that there may be no danger of the earth ſettling unequally after they are planted, which would prejudice the roots by having hollow places in ſome parts of the bed, to which the water would run and lodge, and ſo rot the roots in ſuch places. Then having levelled the earth, laying the ſurface a little rounding, you ſhould mark out the rows by a line, at about ſix inches diſtance each way, ſo that roots may be planted every way in ſtraight lines; then you ſhould open the earth with your fingers at each croſs, where the roots are to be planted, about two inches deep, placing the roots exactly in the middle, with their crowns upright; then with the head of a rake, you ſhould draw the earth upon the ſurface of the bed level, whereby the top of the roots will be about an inch covered with earth, which will be ſufficient at firſt. This work ſhould be done in dry weather, becauſe the earth will then work better than if it were wet; but the ſooner after planting there happens to be rain the better it will be for the roots, for if it ſhould prove dry

dry weather long after, and the earth of the beds be very dry, the roots will be ſubject to mould and decay; therefore, in ſuch a caſe, it will be proper to give a little water to the beds, if there ſhould no rain happen in a fortnight's time, which is very rare at this ſeaſon of the year; ſo that they will ſeldom be in danger of ſuffering that way.

When the roots are thus planted, there will no more be required until towards November, by which time they will begin to heave the ground, and their buds appear; when you ſhould lay a little of the ſame freſh earth of which the beds were compoſed about half an inch thick all over the beds, which will greatly defend the crown of the root from the froſt: and when you perceive the buds to break through this ſecond covering, if it ſhould prove a very hard froſt, it will be very proper to arch the beds over with hoops, and cover them with mats, eſpecially in the ſpring, when the flower buds will begin to appear; for if they are expoſed to too much froſt, or blighting winds, at that ſeaſon, their flowers ſeldom open fairly, and many times their roots are deſtroyed; but this happens more frequently to the Perſian kinds, which are tenderer, than to thoſe ſorts which are pretty hardy; for which reaſon they are commonly planted in open borders, intermixed with other flowers, though in very hard winters theſe are apt to ſuffer where care is not taken to guard off the froſt.

In the beginning of March the flower ſtems will begin to riſe, at which time you ſhould carefully clear the beds from weeds, and ſtir the earth with your fingers between the roots, being very careful not to injure them; this will not only make the beds appear handſome, but alſo ſtrengthen their flowers. When the flowers are paſt, and the leaves are withered, you ſhould take up the roots and carefully clear them from the earth, then ſpread them upon a mat to dry in a ſhady place, after which they may be put up in bags or boxes, in a dry room until the October following, which is the ſeaſon for planting them again.

RAPE. [*Rapa.*] Rape or coleſeed. This is a produce confined, in a manner, to a few parts of the kingdom, but it might very well be carried to others. We ſhall ſhew the profits to the huſbandman in general, and if we can tempt him to cultivate the plant, ſhall not leave him deficient in any article regarding the management.

There is the leſs reaſon to wonder that coleſeed, ſo profitable in ſome parts of the kingdom, is ſo little raiſed in others, for this, that the plant itſelf is leſs known than any other among the whole number of thoſe cultivated for uſe. To aſk what herb it is that yields this ſeed, is a queſtion that would puzzle many beſide the farmer. Even its name is not commonly known. Coleſeed is the name of the ſeed only, it is alſo called rape-ſeed, but this does not lead to the matter: Cole is not the name of any plant, and rape ſignifies turnip; we ſhall explain this matter, and before we enter upon the culture ſhew the farmer what the herb properly is that he is to cultivate.

Coleſeed is very well known in Lincolnſhire, and ſome other counties; and rape oil is as well known which is made from it.

The ſeed is known at the ſhops, and the plant by the farmers who raiſe it; but nothing more. In ſome places the ſeed is ſown among the other kinds of what are called young ſalleting; but in this caſe, as the firſt leaves are only eaten, no more is ſeen of it.

All the time that this ignorance remains about the form of a very uſeful plant, it is common, wild on our ditch banks, and there needs nothing more than to ſhew its ſeed to the Lincolnſhire farmer, for him to ſay that is it. Theſe are the inaccuracies and errors which ſo greatly retard the progreſs of improvements in huſbandry. The articles are themſelves unknown to thoſe who ſhould be the authors of the amendments.

The price of coleſeed, if the farmer chooſes to ſell it in that condition, is very conſiderable, reckoning the quantity an acre yields; and if he will be at the trouble of drawing the oil, the method of doing it is very eaſy, and his profit vaſtly greater. Nor are theſe all the advantages he receives from the growth of this plant: it is

like

like the dyers weed in this, that it will grow on ſoils which will not yield any thing elſe to advantage; and though theſe are of a very different kind from thoſe peculiar to the dyers weed, that flouriſhing on the moſt dry, and this beſt on marſhy grounds; yet there are enough of theſe laſt in many parts of the kingdom to ſhew how advantageous it muſt be to the nation to render the plant more known, and the culture of it among our farmers more univerſal.

There is no other name by which we can treat of this intelligibly to the farmer, than this formed from the ſeed: What herb it is that is thus called in the coleſeed countries, or what is the plant that yields coleſeed, we are about to ſhew.

There are three kinds of plants, each containing ſeveral ſpecies, and diſtinguiſhed by different names, but are very nearly agreeing in their flowers, ſeed-veſſels, and other general circumſtances; theſe are, 1. The Cabbage kind. 2. The Turnip kind. And 3. The Navew kind. The confuſion that has been made amongſt theſe has been one occaſion of the uncertainty about the coleſeed plant.

The root of the turnip kind, and the ſtalk of the cabbage kind, are what principally diſtinguiſh them; as to the navew, it differs very little from the turnip, and that principally in the ſmallneſs and length of the root.

The flowers of theſe are alike, and the ſeeds of them all reſemble one another, and they will all in the ſame manner yield that oil which we call rape oil; but there is one kind that yields it in greater quantity than the others. This is the wild navew, called Napus Sylveſtris, by authors, and this is the proper coleſeed plant.

The turnip and cabbage kind we have in our gardens in great variety, and ſome have for curioſity introduced the garden navew, or Napus Sativus, but it is inferior to the turnip, and therefore but little regarded. The authors who figure and deſcribe the garden navew, figure alſo the wild kind, and this is what we have on the banks of ditches. We have obſerved that the navew differs little from the turnip, except in the ſhape and bigneſs of the root; and this plant, which otherwiſe much reſembles the turnip kind, yet is properly a navew, becauſe it has a very ſmall root.

Any of theſe kinds therefore will anſwer under the farmer's hands; but as the wild navew yields much the finer ſeed, and much the larger quantity of it, and that is alſo the richeſt in oil, ſo it is beſt to cultivate that particular kind. This is oftener to be had from Holland than any where elſe, and we ſhall inform the purchaſer how he is to know it by the eye.

The proper coleſeed plant, or wild navew, is four feet high, and of an irregular growth. The root is long, ſlender, and white; it is of a ſweeter taſte than the turnip, but with ſomewhat more warmth. The lower leaves are long, large, deeply divided at the edges, and of a duſky green. One ſtalk uſually riſes in the midſt of theſe, ſometimes two or more. This is round, ſmooth, of a pale green colour, and divided into many branches towards the upper part. The leaves upon this ſtand one by one, not in pairs; they are ſmaller and narrower than thoſe from the root, and are of a paler colour. The flowers grow at the tops of all the branches, they are ſmall, of a bright yellow, and perfectly reſemble thoſe of the turnip: After theſe come pods which contain the ſeed. This reſembles turnip-ſeed, but that it is larger and ſmoother. The common appearance of the plant in ſummer is with long ſpikes of pods, and a few flowers at the top of each.

This is the appearance of the wild navew in our fields and on banks. When it is cultivated for coleſeed it grows ſomewhat taller and more branched, otherwiſe there is no difference; and in good ground the root will be larger and more tender. There is no difference between the wild navew and the garden navew, except that the root of the garden kind is yet tenderer and thicker; but this is principally while it has only the lower leaves, for when it is ſuffered to run to ſeed, the root grows ſticky in the garden. Indeed there ſeems no other difference between the garden and the wild navew, but what is made by culture.

The flowers and fructification of the coleſeed plant, when nicely examined,

mined, are thus formed. The flowers ſtand in a cup compoſed of four little oval-pointed green leaves, and this does not remain after the flower is faded, as in the dyers weed, but periſhes and falls off with it. The flower is compoſed of four plain narrow yellow leaves, placed croſs-wiſe. Theſe are broadeſt at the ends, and not at all divided; they are of the ſame length as the leaves of the cup. In the center of this flower riſe ſix filaments, four of which are conſiderably longer than the other two; they have ſmall pointed buttons growing on them. In the center of theſe riſes a ſmall upright body, which is the rudiment of the ſeed-veſſel; this has a kind of button at its top, in which there are ſmall openings for receiving the fine duſt out of the heads of the filaments; for in propagating the ſeed, when the leaves and cup of the flower are fallen, this part enlarges, and at length becomes a ſeed-veſſel of a longiſh depreſſed ſhape, divided in the inſide by a membrane, which ſhews itſelf beyond its extremity, and containing ſeveral large, round, bright ſeeds.

This is the conſtruction of the flower and fruit of the coleſeed plant, the proper name of which is wild navew, and which grows naturally wild, not only in England, but in Flanders, and other parts of Europe.

The ſeeds of the natural wild plant may be gathered and ſown; but thoſe from ſuch as have been cultivated raiſe the ſtouteſt plants; theſe therefore the farmer is to chooſe, according to the following marks:—

When the farmer has procured a quantity of good ſeed, let him pick out the moſt proper piece of ground for the crop. This will depend on the two great articles, ſoil and ſituation; as to the firſt, the richer the land the better; and as to the other, all that is required is, that it lie tolerably dry. There is no part of England where ſo much coleſeed is raiſed as in the fens, but the lands are firſt laid dry that are intended for this purpoſe: In the ſame manner they cultivate it in Flanders and Holland, on ground originally marſhy; but they are at all the neceſſary pains and expence of making them properly dry firſt.

No lands are more proper for coleſeed than ſuch as have been ſubject to overflowings, but they muſt be ſecure from that accident while the crop is upon them: and muſt be properly dry, in order to receive it.

Whether this overflowing have been from land floods, great rivers within reach of the ſea, or the ſea itſelf, it prepares them equally for the crop of coleſeed. Thoſe where ſalt-water has come, are properer than any others; but they require ſomewhat more preparation.

There are parts of Eſſex where the huſbandman might raiſe coleſeed to a very great advantage; and in many places where grounds have been newly recovered from the ſea by banking, &c. coleſeed is an excellent crop.

Every piece of fat rich land is proper for it; and the farmer need not fear to beſtow it upon this ſpecies, for it will yield to his full content.

If he has a piece of ground that is too rank for wheat, or the other uſual growths, let him ſow it with coleſeed: this will yield an extremely rich increaſe, and the land that would not before have done for corn, will, by proper management, be perfectly well prepared for it by this means.

The right ſoil for coleſeed is mellow earth. A ſoft deep black mould, with little other admixture, feeds it better than any other. The plants never grow ſo robuſt, and the ſeed is not formed in ſuch plenty, or ripened in ſuch perfection on any other. This is the reaſon that marſhy and fenny lands, when properly fitted for that purpoſe, anſwer ſo well with coleſeed: This black deep mellow earth is the natural ſoil in theſe places, one ſcarce ſees any other on breaking the turf in any of them. This is of all others the beſt ſoil for coleſeed; but we have ſhewn it is not limited to this only; any deep ſoil that is mellow, and properly ſituated, will do.

The ſoil we have recommended as moſt proper for coleſeed, is one of thoſe that does not require any great labour in tilling; nor does the coleſeed demand any particularly to its own management. The black mellow earth whereon this crop ſhould be raiſed, cuts eaſily, and turns freely under the plough; and when it is in a proper

a proper degree of dryneſs, breaks freely and finely in the working. All that is particularly neceſſary to fit it for coleſeed, is to make it very fine; and this, unleſs the ſeaſon prove quite unfavourable, or the huſbandman be very unſkilful, is a condition whereinto it is brought eaſily.

In May the land intended for coleſeed is commonly fallowed; in June it is twy-fallowed; and in the latter end of that month, or the firſt week in July, the coleſeed is ſown.

After the laſt ploughing, a fine-toothed harrow ſhould be drawn over the field; after this, if the weather be dry, let there be a light roller carried over it; then let it be very gently and tenderly harrowed again. This laſt harrowing, after the roller has cruſhed and broke the lumps, uſually makes it as even as the flower-border in a garden, and this is the proper condition wherein it is to receive the ſeed.

If the weather prove too wet, let the rolling be deferred; and afterwards let it be performed with great caution; for though the roller may do great good in this caſe, it may alſo do much harm. In ſome lands the ſoil is naturally ſo looſe, but once harrowing divides it ſufficiently.

Coleſeed is to be ordered much in the ſame manner as turnips. When it is got to ſome ſmall height, hoers are to be ſent into the ground, whoſe work ſerves very well to cut down the weeds; and they may alſo thin the plants where they happen to have riſen too thick, as they will always do in ſome places from this irregular manner of ſowing. To thrive well in this way, they ſhould be ſuffered to ſtand at about ten inches diſtance.

In the ſame manner, when the huſbandman ſhall think proper to raiſe this crop by the drill and horſe-hoeing method; they muſt be hoed when they have got a little ſtrength. In this reſpect we need not tediouſly repeat the particulars, the ſame management ſhould be obſerved as in hoeing of turnips, raiſed by this huſbandry.

The weeds in the partitions between the double rows, are to be cut up with the broad hand-hoe; and the plants ſhould be at the ſame time thinned till they ſtand but one every foot and a half, and theſe not oppoſite in the two ſeries, but one in each row oppoſite to the middle of the ſpace between two in the other.

When the plants are thus cleaned out and thinned, let the horſe-hoe or hoe-plough be ſent in as ſoon as any weeds appear in the intervals. This will thoroughly deſtroy them, and well break the ground.

This is to be repeated as often as the weeds riſe, only obſerving this caution, that at firſt the plough tears up only the middle of each interval, and afterwards that it come nearer the edges.

When the coleſeed is ſown, there are only two things neceſſary, the ſingling out the plants to a proper diſtance, and the keeping them clear of weeds while young; for afterwards they will need no care on that head, the plants are ſo ſtrong, and draw ſo much nouriſhment, that nothing can live among them.

Which ever method of raiſing the crop be uſed, it is to be thus prepared for a good growth; and this done, the owner is to conſider that it has more uſes than one. Though the ſeed be the principal conſideration, it is not the only one; and the more regard is to be ſhewn to another, becauſe it comes in order of time before it.

We have obſerved that this plant is of the eatable kind. As it does not grow ſo much into root as the turnip, its leaves are more delicate. Sheep are very fond of them, and they afford a rich and wholeſome nouriſhment. This, properly managed, is a great article. The ſheep are ſupplied at a time when they extremely want nouriſhment, and the crop is far from being injured; on the contrary, it is improved by it. This, therefore, is to be conſidered as a very eſſential part in the management of a coleſeed crop, and we ſhall give the practical huſbandman the method of ordering it to the beſt advantage.

Coleſeed having been ſown in the beginning of July, ſhoots with ſome ſtrength; after a few weeks keeps itſelf up during the droughts of autumn, and getting new ſtrength and ſize in

the leaves from the rains, which introduce the winter, becomes in a condition to refiſt the ſtrongeſt froſts. It ſtands well, and on every open day or two, grows during the depth of winter; ſo that in January, February, and March, the ground is well-covered.

The leaves which now riſe are of no real uſe to the plant in perfecting its ſeed, which is to be done the ſucceeding ſummer. If they grow very rank they rather are injurious, ſwallowing up too much of the nouriſhment that ſhould go to the forming of the young ſtalk, therefore they may be ſpared without injury. Here is then a great ſupply of food for ſheep, at a ſeaſon when graſs is low, and it is extremely wanted; and the ſheep are to be turned in to eat it without any damage to the ſucceeding crop of ſeed.

There are thoſe who ſow coleſeed in ſome parts of Northamptonſhire for this uſe alone; and it anſwers the intent very well. They uſe the pooreſt land for this purpoſe, and on that, although the plant would never grow vigorous and ſtrong ſo as to yield any profitable quantity of ſeed, it ſhoots up very well in leaves.

In the proper lands for this growth, the leaves at this ſeaſon are much finer and ſtronger, and they may be eaten without damage to the crop.

There are thoſe who prefer the cole plant on theſe poor lands for food for ſheep, to the young growth on ſuch as is richer, and they ſay it is more wholeſome; they are not without reaſon; but their experience on this head ſhould not have led them to diſcard the uſe of coleſeed for feeding on rich ground, but to uſe it with diſcretion.

The diſadvantage that attends the feeding of ſheep on the rank growth of coleſeed in rich ground is, that it makes them ſwell. This is the ſame conſequence that happens from feeding them on clover, but it is eaſily remedied. It is only at firſt that this rich food takes ſo ill an effect, and this may be prevented by proper regulations. When the ſheep are firſt turned in, let it be towards the middle of the day; and an hour before ſunſet let them be driven out again into a common paſture. The next day let them be turned in earlier, and driven out later; and ſo the third, fourth, and fifth; after this, let them be juſt driven out at night for two or three days more, and let in again as ſoon as they will in the morning. This will prevent the effect of the coleſeed at firſt, and being now hardened to it by a little cuſtom, they may be left in the fields of it altogether, and will thrive upon it excellently, without the leaſt damage.

Under this article of the effect of coleſeed on ſheep, it is proper to mention, that the firſt ſhoots are not all that ſerve this purpoſe. There is another growth of them that is leſs rank, and that the ſheep love better; and which not being liable to affect them with any diſorder, is to be truſted to them at their diſcretion.

The ſhoots of the coleſeed after gathering the ſtalks for ſeed, are alſo a mild, ſweet, and wholeſome food we have been naming. Theſe grow very ſtrong when there has been rain, but they are never rank, or over-rich. Every one knows the difference there is between the cabbage and coleworts; full-grown leaves firſt cut for the pot, and the ſprouts that grow on the ſtumps and ſtalks after cutting; the difference is juſt the ſame between the firſt growth of large leaves from the coleſeed plant, and the ſhoots that riſe after the cutting down the full-grown ſtalks for ſeed.

Towards the end of June the coleſeed plant in whatever way it has been raiſed, will be fit to cut. The huſbandman muſt therefore keep his eye upon his field very carefully toward that period; for it is of the utmoſt importance to him to ſeize it when it comes. No day of the month, or other preciſe time, can be named for the gathering this crop, becauſe the differences of ſoils and ſeaſons promote and retard its ripening; and even the variety of management, or the age of the plant, may make ten days or a fortnight difference in the ripening in two fields of the ſame ſoil in the ſame year. We have told the huſbandman about what time he is to expect it; and ſhall add the ſigns by which he ſhall know that it is fit for harveſt. One caution we muſt give him withal, that as the ſoil and method of

of culture may make a very great alteration in the time of ripening, he muſt be upon the watch accordingly, expecting it earlier by a fortnight in rich ſoils and the moſt careful conduct, than he need in poor land in the common way. It will be in vain that we lay down the ſigns of its ripening, if he ſlips the time.

We have obſerved that the coleſeed plant has ſmall flowers on the tops of the ſtalks and branches, which when the leaves fall off are ſucceeded by pods. As the flowers that opened firſt are thus followed by the ſeed-veſſels, other flowers open upon the tops, which ſhoot up continually higher and higher. Thus, when the plant begins to flower, nothing is ſeen but a little button or tuft of buds at the top of the ſtalk, and of every branch, with one or two flowers opened or opening upon it; but when it has been ſome time flowering, the aſpect differs, for then the branches having lengthened from the time of their beginning to flower, all that part of them which was the top, and where ſucceſſively the former flowers appeared, is covered with ſeed-veſſels; thus each branch terminates in a ſpike of ſeed-veſſels, a foot or more in length, with a few flowers at its top.

The quantity of ſeed is the riches of the crop, therefore it would appear at firſt ſight, that the longer the plant ſtood, ſo long as it continued flowering, the more advantageous would be the growth, but there are limits to this increaſe, beyond which all is waſte.

The courſe of nature is to ripen theſe ſeeds, and then ſhed them upon the ground for producing the plant again; therefore when ripe the pods open of themſelves, and the ſeeds are loſt. This no art can prevent; and for that reaſon the time is to be watched when any of them begin to open, and that is the exact period for gathering.

When ſome of the pods approach towards ripeneſs they change colour, and the greenneſs is only ſeen at top; when, upon a curſory view, there are ſome found to grow browniſh at the bottom, and thoſe in the middle are yellowiſh or pale, thoſe at the top only being green, then the time of gathering is at hand. It is the intereſt of the owner to let them ſtand ſo long as all are ſafe, but no longer. He is therefore now to look into the field once or twice every day, in a more ſtrict manner. He muſt examine the bottom pods of the ripeſt ſpikes; ſo long as theſe are cloſe all is ſafe; but as ſoon as ſome of them begin to open, the time of gathering the crop is come, for after this every hour's ſtanding will be attended with loſs.

The beſt method of cutting coleſeed is with a ſtrong ſickle, in the ſame manner as wheat is reaped; but this muſt be done carefully. There is no part of the farmer's occupation that requires more expert and honeſt labourers than this. The ſtalks are pretty thick, and by that time the ſeed is ripened thus far, they have loſt their juicy condition, and are grown hard and ſticky. They are not eaſy to be cut, and yet that muſt be done evenly, and with little ſhaking. A great deal of care is to be taken that the ſickle goes eaſily through them, and when ſeparated from the root they muſt be laid gently down in handfuls, that they may dry.

About one-third part of the ſeed is ripe at the time when the loweſt pods are ready to open; in the lying expoſed to the heat of the ſun at this ſeaſon, more than another third hardens, and becomes good; ſo that above two-thirds of the whole quantity of pods yield good ſeed, and this is all that can be expected; for if the farmer were to ſtay for the ripening of the other third, while growing, he would loſe the ſeed from the lower pods, which is much more valuable; and the ſeed is of a ſufficient growth to ripen or harden in the ſun after the plant is cut down.

When the crop has been once laid on the ground it is not to be ſtirred till dry, for the ſeeds in the lower pods are ſo looſe, that they will ſhake out with the leaſt motion, and be loſt. What is required from this expoſure is, to dry and harden them, and they will get this ſufficiently by lying tolerably thin, without being moved. If the weather be very hot, the buſineſs is done the ſooner; if otherwiſe, ſomewhat more time is required; generally from ten days to a fortnight

proves ſufficient. The proof that they are dried enough is, when the pods toward the upper part of the ſpikes open eaſily, and the ſeeds in them are hard.

When the whole is in this condition, nothing is required but to get it to the barn, and thraſh it. In Lincolnſhire, they ſave themſelves a part of this trouble, by thraſhing it in the field; they ſpread a large ſheet upon a level part of the ground, and lay a quantity of the herb on it. A little thraſhing does to diſlodge the ſeeds, which are already looſe and moſt of them in danger of falling out of their own accord; but it is an irregular method; it leaves the farmer's produce, after all his toil, very much at the mercy of the winds, and cannot be performed ſo well as in doors.

The method we would therefore recommend to the huſbandman, if the ground be any thing near home, is this: Let a parcel of large ſheets be ſpread in the field, and the dried ſtalks carefully taken up in their bundles, and laid on them. Each ſheet will hold a great deal this way; for though the parcels muſt be very gently moved to the ſheet, they may be preſſed hard, and handled roughly there; for what ſeeds fall out will be ſaved.

When the ſheets have as much in them as they will hold, the edges and corners are to be gathered in and faſtened, and the ſeveral parcels are to be carried to the barn, and there thraſhed with a careful but light hand, that all the ſeed may be got out, and as little of it as poſſible bruiſed, for it is tender and eaſily hurt, eſpecially when freſh.

After it is ſeparated from the refuſe that was mixed among it in the thraſhing, it muſt be ſpread on a floor pretty thin, and turned often till it is thoroughly dry and hardened; for otherwiſe, when put up, it will quickly grow damp and mouldy.

The uſe of the coleſeed is not over when the oil has been preſſed from it. The cakes that remain are a large quantity, and as the freſh leaves feed ſheep, theſe, in a proper method of giving them, turn to a very good account for feeding of cows. In winter this is an excellent food for them, for keeping them in heart and ſtrength, at a time when other good food is ſcarce.

Calves are alſo to be fed with coleſeed cakes very profitably, but that in a particular manner. After the oil is preſſed out as clean as the common practice can obtain it, there ſtill remains ſo much of it in the cakes, that when they are beat to powder, and mixed with hot water, they make it white and milky, in the ſame manner as ſweet almonds beat up with water make an emulſion. This is the way of giving it to calves, and it proves a very rich, wholeſome, and ſtrengthening food. Calves may be fed with this from three days old, till they are fit to eat graſs or hay.

Will. RAPE. Charlock.

RASPBERRY. [*Rubus Idæus.*] This plant grows naturally in the woods in the northern parts of England, but is cultivated in gardens for its fruit, which ſupplies the table at the ſeaſon when they are ripe. There are two or three varieties of this, one with a red, and the other a white fruit, and the third generally produces two crops of fruit annually; the firſt ripens in July, and the ſecond in October, but thoſe of the latter ſeaſon have ſeldom much flavour. Theſe are accidental varieties, but the fourth ſort we believe to be a diſtinct ſpecies, for the leaves are trifoliate, larger than thoſe of the common ſort, woolly on their under ſide, and the branches and ſtalks have no thorns. This produces but few fruit, and thoſe are ſmall, which has occaſioned its being neglected.

The raſpberry is generally propagated by ſuckers, though we ſhould prefer ſuch plants as are raiſed by layers, becauſe they will be better rooted, and not ſo liable to ſend out ſuckers as the other, which generally produce ſuch quantities of ſuckers from their roots as to fill the ground in a year or two; and where they are not carefully taken off or thinned, will cauſe the fruit to be ſmall, and in leſs quantities, eſpecially when the plants are placed near each other; which is too often the caſe, for there are few perſons who allow theſe plants ſufficient room.

In preparing theſe plants, their fibres ſhould be ſhortened; but the buds, which are placed at a ſmall diſtance from the ſtem of the plant, muſt not;

not be cut off, becauſe thoſe produce the new ſhoots the following ſummer. Theſe plants ſhould be planted about two feet aſunder in the rows, and four or five feet diſtant row from row; for if they are planted too cloſe, their fruit is never ſo fair, nor will ripen ſo kindly, as when they have room for the air to paſs between the rows. The ſoil in which they thrive beſt, is a freſh ſtrong loam, for in warm light ground they do not produce ſo great plenty of fruit, for they naturally grow in cold land, and in ſhade; therefore when they are planted in a warm ſituation and a light ſoil, they do not ſucceed.

The ſeaſon for dreſſing of them is in October, at which time all the old wood that produced fruit the preceding ſummer, ſhould be cut down below the ſurface of the ground, and the young ſhoots of the ſame year muſt be ſhortened to above two feet in length; then the ſpaces between the rows ſhould be well dug, to encourage their roots; and if you bury a very little rotten dung therein, it will make them ſhoot vigorouſly the following ſummer, and their fruit will be much fairer. During the ſummer ſeaſon, they ſhould be kept clear from weeds, which, with the before-mentioned culture, is all the management they will require; but it is proper to make new plantations once in three or four years, becauſe when the plants are ſuffered to remain long, they will produce few and ſmall fruit.

The Virginian Flowering RASPBERRY is commonly propagated in the nurſeries as a flowering ſhrub. The flowers of this ſort are as large as ſmall roſes, and there is a ſucceſſion of them for two months or more, ſo that they make an agreeable variety during their continuance. This ſort frequently produces fruit in England, which are not ſo large as thoſe of the common ſort, and have little flavour. Theſe ripen in September, or the beginning of October.

RAT, the name of a well-known animal, very troubleſome to the farmer, &c.

We ſhall here give the two following receipts, as they are ſaid to be effectual, for deſtroying rats.

The firſt has the ſanction of the Dublin ſociety, who on the 19th of November 1762, ordered a premium of five guineas to one Lawrence O'Hara, for this diſcovery; which is, "one quart of oatmeal, four drops of rhodium, one grain of muſk, and two nuts of nux vomica finely raſped." This mixture is to be made up in pellets, and laid in the holes and places which the rats frequent.

The other receipt is thus: "Take of the ſeeds of ſtaves-acre, or louſe-worth, powdered, one fourth part, and of oatmeal three parts; mix them well and make them up into a paſte with honey. Lay pieces of it in the holes, and on the places frequented by rats or mice, and it will kill ſuch vermin as eat thereof."

The firſt ſtep taken by rat-catchers, in order to clear a houſe, &c. of thoſe vermin, is to allure them all together to one proper place, before they attempt to deſtroy them; for there is ſuch an inſtinctive caution in theſe animals, accompanied with a ſurpriſing ſagacity in diſcovering any cauſe of danger, that, if any of them be hurt, or purſued, in an unuſual manner, the reſt take the alarm, and become ſo ſhy and wary, that they elude all the devices and ſtratagems of their purſuers for ſome time after. This place, where the rats are to be aſſembled, ſhould be ſome cloſet, or ſmall room, into which all the openings but one or two may be ſecured; and this place ſhould be, as near as may be, in the middle of the houſe, or buildings. It is the practice, therefore, to attempt to bring them all together to ſome ſuch place, before any attempt be made to take them; and, even then, to avoid any violence, hurt, or fright to them, before the whole be in the power of the operator.

The means uſed to allure them to one place are various: one of thoſe moſt eaſily and efficaciouſly practiſed is, the trailing ſome piece of their moſt favourite food, which ſhould be of the kind that has the ſtrongeſt ſcent, ſuch as toaſted cheeſe, or broiled red herring, from the holes or entrances to their receſſes in every part of the houſe, or contiguous building, whence it is intended to allure them. At the extremities, and in different parts of the courſe of this trailed tract, ſmall quantities

quantities of meal, or any other kind of their food, ſhould be laid to bring the greater number into the tracks, and to encourage them to purſue it to the center place, where they are intended to be taken; at that place, where time admits of it, a more plentiful repaſt is laid for them, and the trailing repeated for two or three nights.

Beſides this trailing and way-baiting, ſome of the moſt expert of the rat-catchers have a ſhorter, and perhaps more effectual method of bringing them together; which is, the calling them, by making ſuch a kind of whiſtling noiſe as reſembles their own call; and by this means, with the aſſiſtance of the way-baits, they call them out of their holes, and lead them to the repaſt prepared for them at the place deſigned for taking them. But this is much more difficult to be practiſed than the art of trailing; for the learning the exact notes, or cries, of any kind of beaſts or birds, ſo as to deceive them, is a peculiar talent, not eaſily attained to in other caſes.

In the practiſing either of theſe methods of trailing or calling, great caution muſt be uſed by the operator, to ſuppreſs and prevent the ſcent of his feet and body from being perceived; which is done by overpowering that ſcent by others of a ſtronger nature. In order to this, the feet are to be covered with cloths rubbed over with aſſa-fœtida, or other ſtrong ſmelling ſubſtances; and even oil of rhodium is ſometimes uſed for this purpoſe, but ſparingly, on account of its dearneſs, though it has a very alluring, as well as diſguiſing effect, as will be obſerved below. If this caution of avoiding the ſcent of the operator's feet near the track, and in the place where the rats are propoſed to be collected be not properly obſerved, it will very much obſtruct the ſucceſs of the attempt to take them; for they are very ſhy of coming where the ſcent of human feet lies very freſh, and intimates to their ſagacious inſtinct, the preſence of human creatures, whom they naturally dread. To the abovementioned means of alluring by trailing, way-baiting, and calling, is added another of very material efficacy, which is, the uſe of oil of rhodium, which, like the marum ſyriacum in the caſe of cats, has a very extraordinary faſcinating power on theſe animals. This oil is extremely dear, and therefore ſparingly uſed. It is exhaled in a ſmall quantity in the place, and at the entrance of it, where the rats are intended to be taken, particularly at the time when they are to be laſt brought together, in order to their deſtruction; and it is uſed alſo, by ſmearing it on the ſurface of ſome of the implements uſed in taking them by the method below deſcribed: and the effect it has in taking off their caution and dread, by the delight they appear to have in it, is very extraordinary.

It is uſual, likewiſe, for the operator to diſguiſe his figure as well as ſcent; which is done by putting on a ſort of gown or cloak, of one colour, that hides the natural form, and makes him appear like a poſt, or ſuch inanimate thing; which habit muſt likewiſe be ſcented as above, to overpower the ſmell of his perſon; and beſides this, he is to avoid all motion, till he has ſecured his point of having all the rats in his power.

When the rats are thus enticed and collected, where time is afforded, and the whole in any houſe and out-buildings are intended to be cleared away, they are ſuffered to regale on what they moſt like, which is ready prepared for them, and then to go away quietly for two or three nights; by which means thoſe, which are not allured the firſt night, are brought afterwards, either by their fellows, or the effects of the trailing, &c. and will not fail to come duly again, if they are not diſturbed or moleſted. But many of the rat-catchers make ſhorter work, and content themſelves with what can be brought together in one night or two; but this is never effectual, unleſs where the building is ſmall and entire, and the rats but few in number.

The means of taking them, when they are brought together, are various. Some entice them into a very large bag, the mouth of which is ſufficiently capacious to cover nearly the whole floor of the place where they are collected; which is done by ſmearing ſome veſſel placed in the middle of the bag with oil of rhodium, and laying in the bag baits of food. This bag, which

which before lay flat on the ground with the mouth ſpread open, is to be ſuddenly cloſed when the rats are all in it. Others drive, or fright them, by ſlight noiſes or motions, into a bag of a long form, the mouth of which, after all the rats are come in, is drawn up to the opening of the place by which they entered, all other ways of retreat being ſecured. Others, again, intoxicate or poiſon them, by mixing with the repaſt prepared for them, the coculus Indicus, or the nux vomica. A receipt for this purpoſe has appeared, which directed four ounces of the coculus Indicus, with twelve ounces of oatmeal, and two ounces of treacle or honey, made up into a moiſt paſte with ſtrong beer; but if the nux vomica be uſed, a much leſs proportion will ſerve than is here given of the coculus. Any ſimilar compoſition of theſe drugs, with that kind of food the rats are moſt fond of, and which has a ſtrong flavour, to hide that of the drugs, will equally well anſwer the end. If, indeed, the coculus Indicus be well powdered, and infuſed in the beer for ſome time, at leaſt half the quantity here directed will ſerve as well as the quantity before-mentioned. When the rats appear to be thoroughly intoxicated with the coculus, or ſick with the nux vomica, they may be taken with the hand, and put into a bag or cage, the door of the place being firſt drawn too, leſt thoſe which have ſtrength and ſenſe remaining eſcape.

By theſe methods, well conducted, a very conſiderable part of the rats in any farm, or other houſe, and the contiguous buildings, may be taken.

RATTLE-GRASS. [*Rhinanthus.*] This is a very troubleſome weed growing among graſs, and ſpreading itſelf over the whole ground.

RATTLESNAKE-*Root*. [*Senecka.*] The root of a ſpecies of polygala, which grows ſpontaneouſly in Virginia, and bears the winters of our own climate. This root is uſually about the thickneſs of the little finger, variouſly bent and contorted, and appears as if compoſed of joints, whence it is ſuppoſed to reſemble the tail of the animal whoſe name it bears: A kind of membranous margin runs on each ſide, the whole length of the root. Its taſte is at firſt acid, afterwards very hot and pungent.

This root is not at preſent much known in the ſhops. The Senegaro Indians are ſaid to prevent the fatal effects which follow from the bite of the rattle-ſnake, by giving it internally, and applying it externally to the wound. It has of late been ſtrongly recommended in pleuriſies, peripneumonies, and other inflammatory diſtempers; in theſe caſes, Lemery, du Hamel, and Juſſieu, experienced its good ſucceſs (ſee the French memoirs for the years 1738, 1739.) Its more immediate effects are thoſe of a diuretic, diaphoretic, and cathartic; ſometimes it proves emetic: the two laſt operations may be occaſionally prevented, by giving the root in ſmall doſes, along with aromatic ſimple waters, as that of cinnamon. The uſual doſe of the powder is thirty grains or more.

Some have likewiſe employed this root in hydropic caſes, and not without ſucceſs: Bouvart (in the memoirs above-mentioned, 1744) relates examples of its occaſioning a plentiful evacuation by ſtool, urine, and perſpiration, and by this means removing the diſeaſe, after the common diuretics and hydragogues had failed: Where this medicine operates as a cathartic, it generally proves ſucceſsful: if it acts by liquifying the blood and juices, without occaſioning a due diſcharge, it ſhould either be abſtained from, or aſſiſted by proper additions.

RAT-TAILS, Excreſcences which creep from the paſtern to the middle of the ſhanks of a horſe, and are ſo called from the reſemblance they bear to the tail of a rat. Some are moiſt, others dry; the former may be treated with drying ointment and waſhes, the latter with mercurial ointment. If the hardneſs does not ſubmit to the laſt medicine, it ſhould be pared off with a knife, and dreſſed with turpentine, tar, and honey, to which verdigreaſe or white vitriol may occaſionally be added; but before the uſe of the knife you may apply this ointment.

Take black ſoap four ounces, quicklime two ounces, vinegar enough to make an ointment.

RED-LAND, a term much uſed by huſbandmen

Rawen - See Ture Aftermath.

husbandmen to express a sandy soil of a reddish hue, interspersed for the most part with pieces of sand-stone of the same colour, or somewhat deeper.

There are several varieties of this soil, one of which is almost entirely made up of sand; another with an admixture of clay with the sand, the whole making a loose loamy earth; and a third, full of fragments, of a poor sandy iron ore, and often containing shining specks of selenitæ.

REDWEED. Wild Poppy.

REDWOOD. [*Ceanothus Arborescens*] This plant grows naturally wild in the American islands; it rises with a shrubby stalk eighteen or twenty feet high, sending out several horizontal branches, which are garnished with oval veined leaves; the flowers come out at the wings of the leaves, with very short foot-stalks; they are of a white herbaceous colour, and are succeeded by dry capsules, shaped like those of the first sort.

This plant requires to be placed in a warm stove, otherwise it will not thrive in England; it is propagated by seeds, which must be sown upon a hot-bed in the spring; and when the plants are fit to remove, they should be each planted into a separate small pot, filled with light sandy earth, and plunged into a hot-bed of tanners bark, observing to shade them till they have taken root; then they must be treated in the same manner as other tender exotic plants. In the autumn they must be placed in the bark-stove, and during the winter must be watered with great caution, for too much moisture at that season will destroy them.

RED-WORM, the name of an insect very destructive to young corn.

"I have often (says Mr. Baker, in his report to the Dublin Society) heard of the havock which red-worms make in young wheat, barley, and oats; and in some few writers upon husbandry have read of them; but never saw them till May 1763; when, to my great mortification, in a few days, they destroyed, almost totally, nine acres of my wheat, for I did not reap above half a barrel per acre. This misfortune induced me to propose to the consideration of the Dublin Society, whether the offer of a premium might not probably produce a discovery of some effectual method for destroying so injurious an insect, to the infinite advantage of the public: and the society were pleased to offer a premium accordingly.

"I now have the honour to lay before them, what has occurred to me upon that subject.

"The most ingenious M. de Chateauvieux speaks of an insect, which is certainly the same kind, if it be not the very insect which I have now under consideration. This gentleman, after saying, "our wheat, in the month of May 1755, sustained a loss, which even that cultivated according to the New Husbandry, did not escape, describes the worm thus: We found in it many little white worms, which afterwards became of a chesnut colour. They pott themselves between the blades and eat the stems. They are usually found between the first joints of the roots; every stalk which they attacked grew no more, but became yellow, and withered. The same misfortune happened to us in the year 1732. The insects appeared about the middle of May, and made such havock, that the crops were almost destroyed."

"It perhaps might be expected, that this great man should have made the very enquiry which we are now upon, as the loss appears to have been very great in Geneva, at the two periods which he mentions; but when we consider, how much the high office which he held in the city and republic of Geneva, must have engaged his attention, it is rather astonishing that he could oblige the world so much as he hath done by his repeated experiments in husbandry, and his judicious observations upon them: It is therefore less to be wondered at, that this circumstance escaped him.

"The ingenious Mr. Benjamin Stillingfleet also, in the second edition of his miscellaneous tracts, in a note, p. 175-6, speaks of an insect, which is probably the same as that we are seeking to destroy. His words are,

"Thus in Suffolk, and in some parts of Norfolk, the farmers find it their interest to encourage the breed of rooks, as the only means to free their grounds from the grub, from which the

the tree or blind beetle comes, and which in its grub ſtate deſtroys the roots of corn and graſs to ſuch a degree, that I myſelf have ſeen a piece of paſture-land, where you might turn up the turf with your feet.

" Mr. Matthews, a very obſerving and excellent farmer of Wargrave in Berkſhire, told me, that the rooks one year, whilſt his men were hoeing a turnip field, ſat down in part of it, where they were not at work, and that the crop was very fine in that part, whereas in the other part there were no turnips that year.

" We ſee, that M. de Chateauvieux deſcribes this worm as being firſt white, and afterwards becoming of a cheſnut colour. I have carefully ſought them at different periods during the paſt year, but always found them of the ſame cheſnut colour, never varying in any particular, except that of ſize, which I find to be the caſe at all ſeaſons in which I have ſeen them.

" The inſect which Mr. Stillingfleet ſpeaks of, he calls a grub, which, he ſays, deſtroys corn and graſs: This induces me to believe that it is the ſame inſect (though the report which he relates from Mr. Matthews ſeems to contradict it) becauſe I have obſerved, that the red or cheſnut worm never appears voluntarily upon the ſurface; but when the earth is turned up, either with plough or ſpade, the rooks and crows are very bold in their approach to pick them up; a circumſtance which I own has in ſome degree abated my enmity to theſe birds; I therefore never deſtroy nor frighten them off my land whilſt I am ploughing it; but when I ſow, when the corn riſes, and when it is ripe, I deſtroy or baniſh them as well as I can, becauſe the miſchief which they do at thoſe times is intolerable.

" A member of the Dublin Society informed me laſt ſummer, that ſome of his turnips were deſtroyed by the worm; I had ſome few which decayed in their leaves, and became of a lemon colour, preceding the putrefaction which followed and deſtroyed the turnips: I examined their roots, but could not diſcover any inſect which had injured them, and therefore I cannot pronounce that it is the red-worm which deſtroyed this gentleman's turnips; but I ſhall be very watchful with reſpect to this circumſtance upon every opportunity that may preſent itſelf.

" I have obſerved my lucerne to decay in its tops ſoon after it has been up, and upon examining the roots, I have found the red-worm which had cut them off.

" This inſect ſeems to be every where in Ireland called the red-worm; by ſome of the Engliſh writers who have ſpoken of an inſect which deſtroys corn in the manner already mentioned, which I think is undoubtedly the ſame, it is called a grub; by others the large maggot, and the rook worm, becauſe the rooks eat it; but as none of the writers have given any other deſcription of it, than the name by which they reſpectively call it, I ſhall endeavour to deſcribe it.

" Red-worms are about half an inch long, and about one tenth of an inch in diameter; they are jointed in their ſkins, and are of a very firm texture; they have many ſhort legs, two ſmall black ſpecks, which appear to be their eyes, and two ſmall points ſpringing from their heads, with which I believe they cut the corn, and which, in that work, I apprehend, act like forceps: and all I have ſeen of this ſpecies are of a bright cheſnut colour. For this reaſon, I ſhould conceive it would be more deſcriptive to call them the cheſnut worms.

" When they are expoſed to the air, by turning up the earth which is infeſted with them, they will very ſoon cover themſelves again in the ſoil, which they are very capable of doing, by the ſtrength which their make gives them, although they appear to be a ſluggiſh inſect, and have not the advantage of a ſlimineſs upon their ſkins which the common large creeping worm has, which enables that inoffenſive worm to penetrate the earth, and get under timber and ſtones with eaſe.

" The red-worm immediately endeavouring to cover itſelf from the air, is certainly from natural inſtinct, as it will ſoon die when expoſed to the air, as will appear by the experiment Numb. 10, hereafter-mentioned.

" Theſe worms deſtroy wheat, barley, oats, and lucerne, whilſt in an

infant ſtate, in the months of March, April, and May. Late-ſown barley and oats they will deſtroy as late as June. I have not yet experienced that they will deſtroy any other crops.

"The miſchief done by them is in dry weather. Rain ſufficient to penetrate the ground, makes them deſiſt from deſtroying the corn; and, I ſuppoſe, every thing elſe which they at any time injure.

"They cut wheat off juſt above the crown of the roots; barley and oats in the ſame place, and alſo higher up, upon any part of the ſtem, which is below the ſurface of the earth.

"Theſe worms ſeem to abound more in ground which is lightly tilled, than in ſuch as hath been well tilled; but, in lay ground, they ſeem to be more numerous than any where elſe; and the fields upon my farm, in which I have found them, are wetter than other fields where they are not; whether that circumſtance contributes to their increaſe, I cannot ſay, but the following experiments prove that they will live longer in water than they can when expoſed to the open air.

Experiments on Red-worms.

"Numb. 1. I put ten red-worms into a wine glaſs with common ſalt in it. They were all dead in twenty-four hours.

"Numb. 2. Into a glaſs with brine in it I put ten red-worms. They were all dead in ſix hours.

"Numb. 3. Into a glaſs with lime in it, which had been ſlaked for a long time, and expoſed to the weather, I put the like number. They were all dead in forty-four hours.

"Numb. 4. Into a glaſs with the above lime, and ſome water in it, I put the like number. They were dead in twenty hours.

"Numb. 5. Into a glaſs with lime newly ſlaked, and when cold, I put the like number. They were dead in fourteen hours.

"Numb. 6. Into lime-water, made with cold water, I put the like number. They were dead in ten hours.

"Numb. 7. Into a glaſs with ſoot in it, I put the like number. They were dead in four hours.

"Numb. 8. Into ſoot and water I put the like number. They were dead in four hours.

"Numb. 9. Into fair water I put the like number. They were dead in fifty-two hours.

"Numb. 10. Into a glaſs without any thing in it, I put the like number. They were dead in thirty-two hours.

"By theſe experiments we ſee all the articles uſed will kill this inſect in a ſhort time, particularly the ſalt and ſoot. I thought it neceſſary to conſider different articles, the better to ſuit different parts of the kingdom.

"Where lime can be conveniently had, and that it is uſed as a manure, I am apt to believe from the experiments, that no injury can be ſuſtained from theſe worms, but I am afraid a ſmall quantity will not effectually deſtroy them; beſides, I ſhould fear, if it were not put on before the ſowing of the corn, that it might ſinge the blades of the corn; for, from the experiments, it appears, that lime newly ſlaked, is more ſuddenly deſtructive to them than old lime, and therefore it is to be preferred.

"Where lime is uſed for no other purpoſe than to deſtroy this worm, I ſhould conceive that about eight barrels regularly ſown by hand on an acre of ground might be ſufficient; it muſt be firſt ſlaked and cold before a man can poſſibly caſt upon the ground with his hand, lime being a very ſtrong cauſtic; and even when it is cold, the man ſhould have a thick glove upon his hand.

"Where ſalt ſhall be uſed to deſtroy this worm, it muſt always be ſown upon the ground before the intended crop; for, although corn will vegetate and receive benefit from ſalt as a manure when it is uſed antecedent to the ſowing the corn, yet, if it be added after the corn is growing, it will certainly deſtroy it; and therefore, it ſhould never be uſed for this purpoſe, but before the corn is ſown, or at leaſt before it vegetates.

"I conceive that where ſalt is uſed for this purpoſe only, about four hundred and a half to an acre will anſwer this purpoſe, which is a trifle more than one ounce to every ſquare yard.

"We ſee by the experiment, that ſoot kills this worm as ſoon as ſalt; and, as in moſt places it is to be had at a much leſs price than ſalt, I think there

there can be no doubt about preſerring of it; beſides which, it may be ſafely uſed after the corn is up.

"I had ſome parcels of barley under experiments, which theſe worms began to deſtroy; and in order to convey the foot as ſoon as poſſible to the roots of the plants, I mixed a little of it in water, and poured it on the plants with a garden watering-pot; the conſequence was, that I did not loſe one plant afterwards.

"It will hardly be imagined, that I mean that the ſame method is to be purſued upon a whole farm: No; the method I would recommend to the practice of the farmer is this, to ſpread or caſt by hand, as he ſows his corn, about ſix or eight barrels of ſoot on an acre, and let him be careful to chooſe a calm day for the work, otherwiſe, the wind will carry away great part of it, and as what remains cannot be regularly diſpoſed, let him be careful to do it early enough in the ſpring, that the rain may waſh the ſoot and convey it to the roots of the plants before the worm begins the miſchief; if he does this, I am perſuaded his crop will be preſerved.

"We ſee by the experiments, that this worm will live longer in water by twenty hours than when expoſed to the open air; but at length, i. e. in fifty-two hours, they died in the water; perhaps this might be from the effect of drowning, but if ſo, I might have expected they would have been totally deſtroyed in my two fields in the winter of 1763 and 1764, by the immoderate rains which fell at that ſeaſon for a long continuance, by which the land was often flooded. But they ſurvived that winter, as appeared by the great loſs I afterwards ſuſtained by their deſtroying my wheat; and therefore, whether water be an enemy to them or not, it ſeems not eaſy to determine: but if thoſe which died in the glaſs of water were really drowned, yet, I think we may conclude, that water is neceſſary to their exiſtence in the earth, and probably aids them in getting their food from it; and what ſeems to confirm this notion is, that when the land is wet, they do not touch the corn, but as ſoon as ever the land is dry, they begin their miſchief. However, this ſpeculation I muſt ſubmit to the conſideration of perſons more capable of diſcuſſing it than I am.

"We ſee by the experiment, Numb. 10, that they cannot live in the open air; which ſeems to prove, that, where they abound in land, the oftener it is ploughed, particularly in the ſummer, when they cannot penetrate the ground ſo eaſily as when it is moiſt, they muſt be, by ſuch ploughing, greatly diminiſhed; beſides which, the frequent ploughing gives the crows more opportunities of picking them up, in which, as I before ſaid, they are very watchful.

"Frequent ploughing has been recommended by ſome writers, as the only means of deſtroying this worm; and they have recommended the plough's being ſtuck with nails, urging, that by theſe nails the worms are cut to pieces; others have recommended walnut leaves being ſoaked in water, to ſprinkle the land; and ſteeping ſeed-corn in various liquors, as infallible remedies: But ſuch methods as theſe are founded upon miſtaken principles; they only miſlead the farmer, and muſt diſappoint him.

"Worlidge recommends a ſtrong lye made of fixed ſalts, but that would be impracticable. Mortimer recommends ſea-water for ſuch lands as are near the ſea-coaſt, which I believe would anſwer very well. He ſays he uſed ſoot once with ſucceſs, but that it did not ſucceed with him afterwards. I am perſuaded he did not uſe the ſoot early enough to have it waſhed into the ground by rain, or perhaps he uſed too ſmall a quantity.

"I would not be thought to arrogate any merit to myſelf on account of what I have offered on this ſubject, ſince it appears, that other perſons have uſed the articles which I have recommended againſt this common enemy; but many perſons have been diſappointed in their expectations from theſe remedies, which muſt have ariſen from their either having uſed too ſmall a quantity, or not having obſerved the neceſſary precautions; if thoſe which I have recommended ſhall be put in practice, and found to anſwer, I ſhall think myſelf amply rewarded."

REED. [*Arundo.*] The ſpecies are, 1. The common Marſh Reed. 2. The manured

and placed into pans of water, which ſhould be plunged into a hot-bed; and as the water waſtes, ſo it muſt, from time to time, be renewed again. In July theſe plants may be ſet abroad in a warm ſituation, ſtill preſerving the water in the pans, otherwiſe they will not thrive; and towards the latter end of Auguſt they will produce their grain, which will ripen tolerably well, provided the autumn proves favourable.

RICK, A pile of corn, hay, ſtraw, &c. regularly heaped up in the open air, and ſheltered from wet.

RIDDER, or RIDDLE. A ſieve to clean corn.

RIDGE, the riſing ground left between the furrows in ploughing. *See*.

RINGES *in a horſe's mouth*, are wrinkles or riſings of fleſh in the roof of the mouth, running acroſs from one ſide of the jaw to the other, with furrows between them.

RING-BONE, A hard ſwelling on the lower part of the paſtern of a horſe, that generally reaches half round the fore-part. It has its name from the reſemblance to a ring.

It often ariſes from ſtrains, &c. and when behind, from putting young horſes too early upon their haunches; for in that attitude a horſe throws his whole weight as much, if not more, upon his paſterns, than on his hocks.

When it appears diſtinctly round the paſtern, and does not run downwards toward the coronet, ſo as to effect the coffin-joint, it is eaſily cured; but if it takes its origin from ſome ſtrain or defect in the joint originally, or if a callofity is found under the round ligament that covers that joint, the cure is generally dubious, and ſometimes impracticable; as it is apt to turn to a quittor, and in the end to form an ulcer upon the hoof.

The ring-bones that appear on colts and young horſes will often inſenſibly wear off of themſelves, without the help of any application; but when the ſubſtance remains, there needs no other remedy beſides bliſtering, unleſs when by long continuance it is grown to an obſtinate hardneſs, and then it may require both bliſtering and firing.

To fire a ring-bone ſucceſsfully, let the operation be performed with a thinner inſtrument than the common one, and let the lines or razes be made not above a quarter of an inch diſtant, croſſing them obliquely, ſomewhat like a chain; apply a mild bliſter over all, and when quite dried up, the rupture plaiſter; and then turn the horſe to graſs for ſome time.

RIPPLING *of Flax*, The operation of taking off the ſeed from the flax by drawing it through a ripple, or large comb. See FLAX.

ROCKET. [*Eruca.*] This was formerly much cultivated in gardens for medicinal uſe, and for ſallads, but is at preſent leſs common. In appearance it reſembles muſtard, but is eaſily diſtinguiſhable by the ſmoothneſs of its leaves, and its diſagreeable ſmell. The ſeeds have a pungent taſte, of the muſtard kind, but weaker; they have long been celebrated as aphrodiſiacs, and may, probably, have in ſome caſes a title to this virtue, in common with other acrid plants.

Garden ROCKET. Dame's violet.

ROCK-ROSE. *See* CISTUS.

ROD. A meaſure in length containing ſixteen feet and a half. In land meaſure, ſixteen feet and a half ſquare.

Golden ROD. *See* GOLDEN ROD.

ROLLER, A large piece of wood turning on its axis, and drawn over the ſurface of the ground to break the ſmall clods, and render it ſmooth and even. *See Parkin's Land - Husbandry.*

ROOD, A quantity of land equal to forty ſquare poles or perches, that is, a quarter of an acre.

ROOP. Hoarſeneſs.

ROOT, The lower part of a plant, by which it adheres to the earth, and by which it draws its nouriſhment, and tranſmits the juices to the other parts. *Root-fallow. See Moor-Lowe*

ROSACEOUS, An epithet applied to ſuch flowers as are compoſed of ſeveral petals or leaves, diſpoſed in a ſort of circular form, like thoſe of the roſe; of this kind are the flowers of the piony, ranunculus, &c.

ROSIL, or *Roſſils*, Land neither light nor heavy, being a medium between ſand and clay.

ROSE-TREE. [*Roſa.*] Of this plant are reckoned fourteen different ſpecies, the varieties of which are ſtill more numerous.

1. The dog roſe, or hip tree. 2. The

Rook - Horizontal Sportsman
&c. See Botanical Dic
Hanway -

The white roſe, and its varieties. 3. The red roſe, and its varieties. 4. The hundred-leaved roſe, and its varieties, which include the Moſs, and Provence. 5. Cinnamon roſe. 6. The Alpine roſe, or virgin roſe, without prickles. 7. Carolina, or Virginia roſe. 8. Apple-bearing roſe. 9. Burnet-leaved roſe. 10. Scotch roſe. 11. Muſk roſe. 12. Evergreen muſk roſe. 13. The Damaſk roſe. 14. The ſweet-briar.

All theſe are of the ſhrub kind, and all the fourteen kinds deciduous and hardy.

The propagation of all the ſorts is by ſuckers, layers, budding, and ſome ſorts by ſeeds; but ſuckers are the moſt common and expeditious method for propagating moſt of the ſpecies.

By ſuckers. Moſt of the roſes ſend up many ſuckers annually from the root, attaining from one or two to three or four feet in height, or more, in one ſummer, and by theſe the ſhrubs may be expeditiouſly propagated in great plenty; they may be taken up in autumn, winter, or early in ſpring, with ſome fibres to their bottom; and the ſtrongeſt may be planted out finally, and the weakeſt in nurſery lines for a year or two, or longer; they will readily grow, and will moſt of them produce flowers the following ſummer.

When theſe ſhrubs have grown into large bunches, with many ſuckers grown up to ſtems from the root, the whole may be taken up and ſlipped, or divided into ſo many ſeparate plants, and planted out, as above.

Obſerve, that as the moſs roſe, muſk roſe, apple-bearing roſe, and ſome others, furniſh ſuckers but ſparingly, ſo in default thereof muſt have recourſe to layers, or budding; particularly for the Moſs Provence.

By Layers. All the ſorts of theſe plants will grow by layers of the young ſhoots; and is an effectual method of propagation, for ſuch ſorts particularly as ſparingly furniſh ſuckers, as the Moſs Provence, &c. and to obtian plenty of ſhoots for laying, a quantity of the plants ſhould be planted for ſtools; which being headed down low, they will throw out plenty of ſhoots near the ground in ſummer, for laying in autumn or winter following, by ſlit or twiſt-laying, they will be rooted by next autumn, and fit for tranſplantation in nurſery rows; though ſometimes the Moſs Roſe, &c. require two years before they are tolerably well rooted; but of theſe ſorts you may alſo try layers of the young tender ſhoots of the year, layed in ſummer, any time in June, they will probably root a little the ſame ſeaſon. However, the layers of all ſorts, after being properly rooted, ſhould be taken up in autumn, and planted in the nurſery, to have a one or two year's growth, or to remain till wanted.

By Budding. This is ſometimes practiſed in propagating ſome choice ſorts that ſeldom ſend up ſuckers, ſuch as the Moſs Provence, &c. alſo, when intended to have two, three, or more different ſorts of roſes upon the ſame tree, for curioſity; working upon the Frankfort, or any other ſtrong ſhooting roſe-ſtocks raiſed from ſuckers.

By Seeds. This is ſometimes practiſed to try to obtain new varieties; alſo ſometimes for raiſing ſome particular permanent ſpecies, ſuch as the Canine Roſe, Burnet-leaved Roſe, Scotch Roſe, Apple-bearing-roſe, ſingle Sweet-Briar, and ſuch others as continue the ſame by ſeedlings; ſowing them generally in autumn ſoon after they are ripe, and they will ſometimes riſe the following ſpring, as if not ſowed till the ſpring ſeaſon, moſt of the ſorts are apt to remain till the ſecond year before they riſe freely; ſow them however in any bed of light earth, either in ſhallow drills, or all over the ſurface, covering them half an inch deep; and when the ſeedlings are a year old, tranſplant them in nurſery rows.

Obſerve, however, that the double kinds, and other particular varieties of the ſpecies in general, cannot be continued the ſame with certainty by ſeeds, ſo muſt always be propagated by ſuckers or layers, &c.

But remark, the common ſingle Sweet Briar, when required in any conſiderable quantity ſhould generally be raiſed from ſeed, ſowing it in drills half an inch deep, either to remain, or for tranſplantation; though when deſigned to form a ſort of hedge of this plant to produce a crop of ſhoots

to

to cut for the ſupply of markets during the ſummer, it is eligible to ſow the ſeed at once in a drill where the plants are to ſtand.

Hoffman ſtrongly recommends the flowers of the Damaſk Roſe as of ſingular efficacy for raiſing the ſtrength, chearing and recruiting the ſpirits, and allaying pain; which they perform without raiſing any heat in the conſtitution, rather abating it when inordinate. Damaſk roſes, beſides their cordial aromatic virtue, which reſides in their volatile parts, have a mildly purgative one, which remains entire in the decoction after the diſtillation: This, with a proper quantity of ſugar, forms an agreeable laxative ſyrup, which has long kept its place in the ſhops. The other officinal preparations of this flower are of ſolutive honey, and the diſtilled water, which laſt is an ingredient in the muſk-julep, the confection of kermes, and ſaponaceous lotion, and is uſed alſo in making the ſimple ointment called pomatum.

Roſe-bay. See Oleander.

Dwarf Roſe-bay. [*Rhododendron.*] There are five ſpecies of this plant, two of which are evergreens, all flowering in June. They are propagated by ſowing the ſeeds in autumn.

Roſe Campion. [*Agroſtemma.*] The ſingle roſe campion has been long in the gardens, where ſometimes it becomes a troubleſome weed. The double ſort is now placed in its room, but is only cultivated by parting the roots.

China Roſe. [*Hibiſcus Chinenſis.*] This grows naturally in the Eaſt Indies, from whence it has been carried to the Weſt-India iſlands, and obtained the name of Martinico roſe. The flowers of this plant at the firſt opening are white, then change to a bluſhing red, and at their decay turn purple; it is propagated by ſeeds, and muſt be treated tenderly.

Gelder Roſe. See Gelder Roſe.

Roſe *of Jericho.* [*Anaſtatica.*] This plant grows naturally in the ſands near the borders of the Red Sea, and in many parts of Syria. It is a low annual plant, dividing into many irregular woody branches near the root; at each joint is placed a ſingle, oblong, hoary leaf, and at the ſame places come out ſmall ſingle flowers of a whitiſh green colour, compoſed of four ſmall leaves, placed in form of a croſs, like the other plants of this claſs. Theſe are ſucceeded by ſhort wrinkled pods, having four ſmall horns; theſe open into two cells, in each of which is lodged a ſingle brown ſeed.

It is propagated by ſeeds ſown the beginning of March on a moderate hot-bed.

South-Sea Roſe. Oleander.

Roſe-wort. [*Rhodiola.*] There are two ſorts, one growing in Wales, Yorkſhire, and Weſtmoreland; and another with ſmaller roots found on the Alps. They are preſerved in gardens for the ſake of variety, and are propagated by parting their roots about the beginning of September.

Roſewood. [*Rhodium.*] The writers on botany, and the materia medica, are much divided about the lignum rhodium, not only with regard to the plant which affords it, but likewiſe in their accounts of the drug itſelf, and have deſcribed under this name ſimples manifeſtly different. This confuſion ſeems to have ariſen from an opinion, that the rhodium and aſpalathus are the ſame; whence different woods brought into Europe for the unknown aſpalathus were ſold again by the name of rhodium.

The lignum rhodium of the ſhops is uſually in long crooked pieces full of knots, which when cut appear of a yellow colour like box, with a reddiſh caſt; the largeſt, ſmootheſt, moſt compact, and the deepeſt coloured pieces, ſhould be choſen; and the ſmall, thin, or pale ones, rejected. The taſte of this wood is lightly bitteriſh, and ſomewhat pungent; its ſmell very fragrant, reſembling that of roſes; long kept, it ſeems to loſe its ſmell; but on cutting, or rubbing one piece againſt another, it ſmells as well as at firſt. Diſtilled with water, it yields an odoriferous eſſential oil, in very ſmall quantity. Rhodium is at preſent in eſteem only upon account of its oil, which is employed as an high and agreeable perfume in ſcenting pomatums, and the like. But if we may reaſon from analogy, this odoriferous ſimple might be advantageouſly applied to nobler purpoſes: a tincture of it in rectified ſpirit of wine, which

which contains in a ſmall volume the virtue of a conſiderable deal of the wood, bids fair to prove a ſerviceable cordial, not inferior perhaps to any thing of this kind.

ROUGHNESS *of the Coat.* When a horſe grows rough in a ſtable in ſpite of the uſual care, and his heels ſwell, the following mixture is to be given him with all his food:

Take a pound of flower of brimſtone, half a pound of turmerick, and a quarter of a pound of crude antimony in powder. Sift theſe together, by which means they will be thoroughly mixed, and ſtrew a little of it over and among his victuals.

ROSEMARY. [*Roſmarinus.*] The name of an odoriferous plant very common in almoſt every garden.

Roſemary may be raiſed from ſeeds; but it is more commonly and more eaſily propagated by planting ſlips or cuttings of it in a ſpot of light freſh earth, in the ſpring of the year juſt before its buds begin to open. When theſe plants have taken root (till which they muſt be watered gently from time to time, and ſhaded if the ſun be too powerful) they ſhould be tranſplanted into the places where they are to remain. This ſhould be done early in September, or the latter end of March; but in whatever ſeaſon they are tranſplanted, it ſhould not be during a cold drying eaſterly wind, becauſe this would ſoon ſhrivel up their leaves and kill them. If a few warm ſhowers fall ſoon after they are ſet, they will ſoon take root, and after that they will require no farther care than keeping them free from weeds. The diſtances between the plants ſhould be full ſufficient to allow for their utmoſt growth, ſo that they may not touch one another. The growth will be moſt luxuriant, eſpecially in the ſummer, if they are ſet in a rich mould: but then they will be moſt ſubject to be injured by froſts; nor will their odour be near ſo ſtrongly aromatic, as when raiſed on a poor gravelly ſoil.

Roſemary is a native of Spain, Italy, and the ſouthern parts of France, where it grows in great abundance in dry gravelly ſoils. It has a fragrant ſmell, and a warm pungent bitteriſh taſte; the leaves and tender tops are ſtrongeſt; next to theſe the cup flower; the flowers themſelves are conſiderably the weakeſt, but moſt pleaſant. Aqueous liquors extract great ſhare of its virtues by infuſion, and elevate them in diſtillation; along with the water ariſes a conſiderable quantity of eſſential oil, of an agreeable ſtrong penetrating ſmell. Pure ſpirit extracts in great perfection the whole aromatic flavour of the roſemary, and elevates very little of it in diſtillation; hence the reſinous maſs, left upon abſtracting the ſpirit, proves an elegant aromatic, very rich in the peculiar qualities of the plant.

ROT. A diſeaſe incident to ſheep, ariſing frequently from wet ſeaſons, and too moiſt paſture.

"But the rot in ſheep," ſays an ingenious and practical writer, "does not always proceed either from moiſture alone, or the nature of the ſoil alone; for all moiſt grounds do not cauſe the rot in ſheep, and there are ſome lands which rot ſheep in wet years only.

"The rot, in fact, ariſes from a certain putrefaction, both in the air, and in the graſs or herbs that uſually grow in ſuch moiſt years: theſe, together with their moiſt food, corrupt their livers, and bring on the diſeaſe.

"It is indeed very difficult to cure this diſorder, unleſs it is attempted before the liver is too much waſted: where there is a convenience of doing it, the beſt remedy is an immediate removal to ſalt-marſhes; but this not being in every farmer's power, I ſhall endeavour, from my own experience, to ſupply the deficiency.

"In ſuch caſes as theſe, a prevention of the evil is to be recommended to the practice of every rational farmer.

"Some grounds naturally yield a ſoft, ſpungy graſs, which is, more than any other, ſubject to breed the rot in ſheep; I would therefore adviſe, that other cattle be fed in theſe grounds, and the ſheep kept in the drieſt, hardeſt, and healthieſt paſtures.

"I have known land that has kept ſheep in health for many ſucceſſive years, yet afterwards, when the months of May and June have proved wet, a ſrim and frothy graſs has ſuddenly ſprung up, which, together with the bad air that muſt of courſe follow, has cauſed a rot in the ſheep that were then on it; the evil was obſerved in time, the ſheep were removed to a

dry and almoſt barren heath, and in the ſucceeding winter they were ſoddered with good, dry, ſweet hay, and a great loſs was prevented.

"This unwholeſome graſs is moſt apt to grow in cold land, and in the ſummer-time; and it is a general opinion, and well founded on experience, that if the ſummer does not rot ſheep, the winter will not, the power of the winter alone not being ſtrong enough to begin a rot.

"A very ſenſible writer, whoſe book I have juſt turned to, I mean Mr. Liſle, ſays, that broom is very good for the rot; and indeed I have often experienced it, for in a farm I occupied ſome years ago there were ſeveral broom-fields, and I have often obſerved that ſuch of my ſheep as were part of the year fed in them were never infected with the rot, whilſt others in my poſſeſſion had it to a great degree. I profited however by experience, for I took care thenceforward that all my ſheep ſhould, by turns, enjoy the advantages to be derived from their feeding on the young ſhoots of the broom.

"As to what Mr. Liſle ſays, on the authority of Mr. Ray, that the marſh-trefoil will cure the rot, I cannot, from experience, corroborate it: I have heard its efficacy in this diſorder often mentioned, but never yet heard any particular fact related ſo circumſtantially as to induce me to depend on its effects.

"That ſalt is good, I agree with the above gentleman, and Mr. Boyle; and this gives me an opportunity of communicating a receipt which I know to be a good one.

"When you perceive by the colour of your ſheep's eyes, that the rot has taken them, drive your flock into a barn, a covered fold, or ſome ſuch convenient place; around this place let there be wooden troughs, like mangers, in which you ſhould feed your ſheep with good, dry, clean oats, for forty-eight hours; then have ready ſome hay ſalt finely powdered and ſearced, of which you are to ſprinkle a little among the oats, increaſing the quantity till it diſguſts the ſheep, and you perceive they fall off their appetites; afterwards, for the two following days, give them again clean oats; and then mix your ſalt with them as before, continuing this proceſs till their eyes have recovered their natural colour, when you will find them perfectly cured; and to be convinced, it will only be neceſſary to kill one or two out of the flock.

"To this I ſhall add a receipt for the rot in ſheep, which was communicated to me by a friend, a man of credit and veracity, who ſays he has often tried it with ſucceſs.

> "Steep ſome regulus of antimony in ale, adding thereto ſome grains of paradiſe, and a little ſugar to ſweeten it. Of this infuſion ſomewhat leſs than a gill is to be given to every one of your affected ſheep; they are to have two or three doſes, according as they are more or leſs affected by the diſtemper, allowing two days intermiſſion between each doſe."

"This is ſaid, as I have already obſerved, to be a cure almoſt certain.

"I juſt now take notice, that when rain falls in the months of May and June it is apt to cauſe the rot in ſheep; it will be neceſſary to add, that folding them in the above months increaſes the diſorder; for after having been deprived of their liberty during the whole night, they bite the noxious graſs the more greedily in the morning, having leſs ceremony in their choice of herbs than if they were not folded. This is a matter of ſome conſequence, therefore worthy of being attended to.

"One thing more I muſt, on the authority of Mr. Liſle, communicate to your readers, viz. an obſervation of a Leiceſterſhire farmer, that ſheep, when firſt touched with the rot, will thrive mightily in fatting for ten weeks, but if they are not diſpoſed of when they are come up to a pitch, they will, in ſeven or eight days time, fall away to nothing but ſkin and bone. The ſame farmer obſerved, that he had often had them die in the height of their pitch, in half an hour's time, with twenty-ſeven pounds of tallow in their bellies." *Muſeum Ruſticum*, vol. i. page 434.

To this account we ſhall add a receipt communicated to Mr. Mills by a gentleman of Lincolnſhire.

"Steep

"Steep a handful of rue in a pail of water all night, and at morning put in as much ſalt as will make it bear an egg. Give each ſheep half a pint of this liquor, and repeat it thrice, every other morning.

"A farmer who kept four hundred ſheep tried this receipt in the laſt general rot (about fourteen years ago) and did not loſe any, though his neighbours loſt almoſt all theirs. For the ſake of the experiment, he ſet apart about twenty, and did not give them this drink. Many of theſe were rotten."

ROUP. The name of a filthy diſeaſe in poultry, conſiſting of a boil or ſwelling upon the rump, and is known by the ſtaring or turning back of the feathers.

The roup, if not ſoon remedied, will corrupt the whole body of the fowl; to prevent which, the feathers ſhould be plucked away, the ſwelling laid open, and the matter preſſed out; after which, the part is to be waſhed with brine, or ſalt and water.

ROWEL. A kind of iſſue made in horſes for the cure of various diſorders, as inward ſtrains, hard ſwellings, &c.

The operation is performed in the following manner:

A little ſlit being made through the ſkin, about a hand-breadth below the part aggrieved, big enough to put a ſwan's quill in, the ſkin is raiſed from the fleſh, the end of the quill put in, and the ſkin blowed from the fleſh upwards, and all over the ſhoulder; then the hole being ſtopped with the finger, the part blown is beat with a hazle-ſtick, and the wind ſpread with the hand all over, and then let go; this done, a ſkain of horſe-hair, or red ſarſenet, half the thickneſs of the little finger, is put in a rowelling needle, ſeven or eight inches long, and the needle is put into the hole, and drawn through again, ſix or ſeven inches higher; then the needle is drawn out, and the two ends of the rowel tied together, anointing it every day, as well as before the putting it in, with ſweet butter, and hog's greaſe, and drawing it backwards and forwards in the ſkin, to make the putrid matter diſcharge itſelf more plentifully.

RUE. [*Ruta.*] This is a ſmall ſhrubby plant, met with in gardens, where it flowers in June, and holds its green leaves all the winter: we frequently find in the markets a narrow-leaved ſort, which is cultivated by ſome in preference to the other, on account of its leaves appearing variegated during the winter, with white ſtreaks.

Rue has a ſtrong ungrateful ſmell, and a bitteriſh, penetrating taſte; the leaves, when in full vigour, are extremely acrid, inſomuch as to inflame and bliſter the ſkin, if much handled. With regard to their medicinal virtues, they are powerfully ſtimulating, attenuating, and detergent; and hence, in cold phlegmatic habits, they quicken the circulation, diſſolve tenacious juices, open obſtructions of the excretory glands, and promote the fluid ſecretions. The writers on the materia medica in general have entertained a very high opinion of the virtues of this plant. Boerhaave is full of its praiſes, particularly of the eſſential oil, and the diſtilled water cohobated, or re-diſtilled ſeveral times from freſh parcels of the herb: After ſomewhat extravagantly commending other waters prepared in this manner, he adds, with regard to that of rue, that the greateſt commendations he can beſtow upon it fall ſhort of its merit. "What medicine (ſays he) can be more efficacious for promoting ſweat and perſpiration, for the cure of the hyſteric paſſion, and of epileſies, and for expelling poiſon?" Whatever ſervice rue may be of in the two laſt caſes, it undoubtedly has its uſe in the others; the cohobated water, however, is not the moſt efficacious preparation of it. An extract made by rectified ſpirit contains, in a ſmall compaſs, the whole virtues of the rue; this menſtruum taking up by infuſion all the pungency and flavour of the plant, and elevating nothing in diſtillation. With water, its peculiar flavour and warmth ariſe; the bitterneſs, and a conſiderable ſhare of the pungency remaining behind.

Dog's RUE. There are ſeveral ſpecies of this plant cultivated in gardens for variety, all propagated by ſeeds, or by planting ſlips or cuttings.

Dog's RUE, Figwort.

Rowen - winter grass. See Tore.

Goat's RUE. See GOAT'S RUE.

Meadow RUE. See MEADOW RUE.

Wall RUE. See WHITE MAIDEN HAIR.

Syrian RUE. [*Peganum.*] This plant is a native of Syria and Spain, and the ſtalks decay every autumn, but the roots are perennial. It is propagated by ſeeds ſown the beginning of April, requires a warm ſituation, and dry ſoil.

RUPTURE-WORT. [*Herniaria.*] This is a low herb growing wild in ſandy and gravelly grounds. It is a very mild reſtringent, and may, in ſome degree, be ſerviceable in diſorders proceeding from a weak flaccid ſtate of the viſcera: The virtue which it has been moſt celebrated for, it has little title to, that of curing hernias.

RUSH. [*Juncus.*] Ruſhes grow on moiſt, ſtrong, uncultivated lands in moſt parts of England, and conſume the herbage where they are ſuffered to remain. The beſt method of deſtroying theſe ruſhes is, to fork them up clean by the roots in July, and after having let them lie a fortnight or three weeks to dry, lay them in heaps and burn them gently, and the aſhes which theſe afford will be tolerable manure for the land; but in order to prevent their growing again, and to make the paſture good, the land ſhould be drained, otherwiſe there will be no deſtroying theſe ruſhes entirely; but after it is well drained, if the roots are annually drawn up, and the ground kept duly rolled, they may be ſubdued. Lime is a good manure for ruſhy land, as likewiſe wood-aſhes from a lime-kiln. *Alſo Cinders.*

Flowering RUSH. [*Butomus.*] There are two varieties of this plant, one with a roſe-coloured flower, and the other with a white flower; but theſe are only accidental variations, therefore not to be enumerated as diſtinct ſpecies.

The roſe-coloured ſort is pretty common in ſtanding waters in many parts of England; the other is a variety of this, though leſs common with us near London. Theſe plants may be propagated in boggy places, or by planting them in ciſterns, which ſhould be kept filled with water, that ſhould have about a foot thickneſs of earth in the bottom, into which the roots ſhould be planted, or the ſeed ſown as ſoon as they are ripe; theſe, though common plants, yet produce very pretty flowers, and are worth propagating for variety's ſake, eſpecially if in any part of the garden there ſhould be conveniency for an artificial bog, or where there are ponds of ſtanding water, as is many times the caſe, and perſons are at a loſs what to plant in ſuch places that may appear beautiful.

Sweet-ſcented RUSH. [*Juncus Odoratus.*] This is a dry ſmooth ſtalk, brought to us along with the leaves, and ſometimes the flowers, from Turkey and Arabia, tied up in bundles about a foot long. The ſtalk, in ſhape and colour, ſomewhat reſembles a barley-ſtraw; it is full of a ſungous pith, like thoſe of our common ruſhes; the leaves are like thoſe of wheat, and ſurround the ſtalk with ſeveral coats, as in the reed; the flowers are of a carnation colour, ſtriped with a lighter purple. The whole plant, when in perfection, has a hot bitteriſh, not unpleaſant, aromatic taſte; and a very fragrant ſmell; by long keeping, it loſes greatly of its aromatic flavour. Diſtilled with water, it yields a conſiderable quantity of eſſential oil. It was formerly often uſed as an aromatic, and in obſtructions of the viſcera, &c. but at preſent is ſcarce otherwiſe employed than as an ingredient in mithridate and theriaca.

RUST *in corn.* Mildew.

RYE. [*Secale.*] Rye has been generally thought the next beſt bread-corn to wheat, and accordingly was formerly very much uſed for that purpoſe, and is ſo ſtill in ſome places; ſometimes alone, but then it has a peculiar ſweetneſs, which is generally diſagreeable to thoſe who are not uſed to it, and ſubjects many to cholicks and looſeneſſes, and the bread made of it is black and heavy.

But a ſmall quantity of it was formerly, and ſtill is in ſeveral places, mixed with wheat in the making of bread, on account of its keeping the bread moiſt, and then is attended with no ill conſequences, but is rather thought to render the wheat more tender, freſh, and agreeable to the taſte. And it was the more cultivated on account of its being the product of barren, gravelly, ſandy land, which was then thought capable of producing

cing nothing elſe, or very little worth the farmer's care.

The common or winter rye requires a ſummer's fallow, and more expence and trouble in the management of it, than it is found to anſwer well; ſince the great improvements made of thoſe dry ſandy ſoils proper for it, by the ſowing of turnips, and ſeveral artificial graſſes, and the great profit made by them; and from the ſeveral ſpecies of corn, they give the farmer an opportunity of raiſing much more advantageous crops than rye; this muſt, of courſe, ſink it in the huſbandman's eſteem, and make it in general to be much leſs regarded.

There are two ſorts of rye.

Firſt, The common or winter rye.

Second, The leſſer or ſpring rye.

The firſt ſort is what is uſually propagated amongſt us, and generally on ſuch dry barren land as is above-mentioned, where better corn will not grow.

The ſecond ſort, or ſmall rye, is to be ſown in the ſpring, about the ſame time when oats are. It is apt to run into ſtraw if it prove a wet ſeaſon, and this ſort is generally lighter than the other; however, it may be very conveniently uſed where wheat or other autumn crops have miſcarried.

Two buſhels are commonly allowed for ſeed to an acre, and four loads generally reckoned a middling crop; and it uſually carries equal price with barley, and about one half the price of wheat.

In ſeveral places they ſow rye together with wheat on the ſame ground, and then it is called Maſlen, that is, Miſcellane, and will then bear a price in proportion to the quantity of wheat which is mixed with it.

The beſt judges think this ſort of huſbandry to be a very ill one, ſince as the rye is ripe before the wheat, and muſt ſtand till they are cut together, the conſequence muſt neceſſarily be, that the rye will ſhed a good deal of its grain; and what is more, the grains when ſo mixed ſeldom make a bread that thoſe perſons can well bear, who have been uſed to wheat. But the rye producing a ſpirit, it is now ſaid to be much uſed for that purpoſe, and ſo far may ſave the wheat; though we doubt ſuch a uſe of it will prove of no advantage to our country.

Rye is a quick grower, and for that reaſon the common ſort, as well as the other, ſometimes is ſowed in ſpring, when wheat miſcarries, and has anſwered expectation; and the ſmaller rye (as before-mentioned) is very proper for this purpoſe, as it is uſually ripe at the common times of harveſt. The common ſort is ſometimes ſowed ſo late, in order to be ploughed in to fertilize the ground for a better ſpecies of grain.

But there is another more beneficial proſpect of ſowing it in autumn, which is, in order to provide food for ewes and lambs in the ſpring, when turnips and coleſeed are gone, or have failed, and before any other ſorts of graſſes are grown to ſupport them; and it may be ſowed for this purpoſe either on land prepared particularly for this end, or on the wheat-land after the corn is carried off, or on other ſtubbles when ploughed up, or where turnips have failed, and will probably anſwer expectation whichever method of management is taken with it for this purpoſe.

It is certainly the beſt proof of a man's being a good farmer, when he is known to provide proper and ſufficient food for his cattle and ſheep for the whole year in general, and alſo has a further particular view for a ſecond proviſion for his ewes and lambs, in caſe any of the former intended ſorts ſhould miſcarry.

All this he may certainly generally do, if he will but carefully conſider the ſeveral reſpective times. The common natural, and the ſeveral artificial graſſes, or turnips, &c. will continue at the latter end of the year; and alſo when he may expect any of them to come in to his aſſiſtance in the ſpring; and then think of, and provide ſuch other ſupports for them in the time. None of them are to be had in the uſual courſe of things, by ſowing either turnips, rye, or coleſeed, by the help of one or other of which (with God's bleſſing) he need not much fear but he may have a plentiful proviſion for his ſtock all the year round.

It is for want of this knowledge and care to provide greens and graſſes for their ſheep in the winter and the ſpring, that in many places in the north they are obliged to prevent their

ewes

ewes from having lambs, till they have natural grafs on the ground to help them to milk to fupport them, which is often not till the end of April, and fometimes not till the beginning of May; and then they are obliged to eat their beft mowing grounds fometimes to the twentieth of May, before they can turn their fheep to the commons, and fave their grounds for hay. If a dry time then fucceeds, thefe grounds are burnt up, and their expected product of hay from their beft land, wholly, or in a great meafure, deftroyed; to the exceeding difadvantage of the farmers, and fometimes to their ruin.

And why may not rye be fowed for the purpofes above-mentioned amongft turnips, and anfwer the farmer's expectation, efpecially as the ground on which turnips are commonly fowed, is generally better prepared, and ufually of a better nature, and in much better heart than the land commonly allotted for the growth of rye; efpecially where turnips are fowed after the drill manner.

In plentiful years rye may be given to fowl, or hogs, which laft delight in it, and will feed very well on it when ground, and made into a paſte, but then they fhould always have water, and alfo a few beans or peafe at the laft, to harden their fat, which is commonly very beneficial in moft methods of feeding them.

This grain is very fubject to grow in the ear, if any wet comes to it; and it will be foon damaged if any green weeds are mixed with it, fo that particular care muft be taken of it in both thefe refpects, to let it have time in the field, to prevent the weeds making it to give in the barn, which will make the corn muſty, and therefore it fhould be houfed dry, and that as foon as ever you can get it fo.

The keeping it in the chaff, on a dry floor, is adviſed for the preſerving it fweet after it is thraſhed; the dry chaff imbibing any moiſture which may happen. This method has been mentioned for preſerving wheat, and is uſeful in ſeveral other grains.

RYE-GRASS. See REY-GRASS.

S.

SAF-FLOWER. [*Carthamus.*] Baſtard ſaffron is cultivated for the ſake of the flower, as the ſaffron is; and probably the culture of ſaffron gave riſe to this article, for its flower is uſed to ſome of the ſame purpoſes, and is called for that reaſon baſtard ſaffron.

The plant however is utterly unlike ſaffron; it is a kind of thiſtle, and wherever it grows, whether wild or cultivated, it has very much the appearance of a weed.

It is an annual plant. The ſtalk is ſturdy, robuſt, and four feet high. The leaves are large and broad, not divided or indented, but beſet with prickles at the edges; the flowers grow at the tops of the branches, into which the main ſtalk divides towards its upper part; and are a kind of large ſcaly heads, ſomewhat reſembling thoſe of our thiſtles, with a great quantity of threads iſſuing out at their tops. Theſe threads are of a moſt bright and beautiful yellow, and have been ſuppoſed by ſome to reſemble the blades in the flower of ſaffron; but there is not much likeneſs. It is for the ſake of theſe the plant is cultivated principally, though the ſeeds are alſo an article in trade. The root is white and long, and it periſhes as ſoon as the ſeeds are ripened. Its firſt ſhoot when ſown, is in certain large broad leaves, but theſe periſh when the ſtalk riſes.

The flower of the Carthamus, examined more accurately, is found to be contained in a large common cup; this ſerves for the ſeveral flowers of which the whole tuft is compoſed, and forms what we call the head of the Carthamus. It is of an oval form, and is compoſed of a great number of ſcales placed like tiles one over another,

ther, and they have each the addition of a kind of little leaf of an oval form. The whole tuft is compoſed of ſeveral tubelar flowers, each is formed of a ſingle leaf, and has the hollow narroweſt at the baſe, and wider all the way to the mouth, where it is divided into five little, and nearly equal ſegments.

In this flower riſe five ſhort filaments, and at the tops of them ſtand ſo many buttons, which are of a cylindrick form, and oblong.

In the baſe of the flower is depoſited the rudiment of the fruit; this is very ſmall and ſhort; from its top there riſes a kind of filament longer than the others. This is the part to which the three blades grow in the flower of the right ſaffron; but in this it is terminated only by a plain little head, which ſerves to receive the duſt from the heads of the ſhort filaments to impregnate the ſeed.

When the whole tender part of the flower is faded, the ſcaly head remains, and contains the ſeeds. One follows every flower.

Several other ſpecies have been added to this, and called by the ſame name, one with blue flowers, and others with divided leaves; but the true and proper plant to be raiſed for uſe is that here deſcribed.

It is a native of Egypt, and ſeveral parts of the eaſt; and is cultivated in many of the warmer parts of Europe; it thrives alſo very well in England.

The principal place where we have ſeen it in England, is in ſome parts of Norfolk; but, if worth while, it might be raiſed in any other part of the kingdom.

Thoſe who ſhall think it worth while to raiſe it, muſt obſerve the following directions: In the firſt place, let the farmer take care to have the ſeeds from abroad; and as often as he ſows it et him get freſh ones, for they do not ripen well in England. Theſe may be had at a very ſmall expence, and with little trouble. The druggiſts ſell them, but theirs are not to be uſed, for they are commonly old. But ſuch a quantity of it is raiſed every year in Germany, that good ſeed may always be had.

When the ſeed is procured, the ſecond care is the ground. The beſt ſoil is a dry loam, and it does not require a rich piece of land of this kind, ſo that the charge of this article is not great, nor indeed in any other.

The ſeeds are to be ſown by hand in a ſparing manner on the land in ſpring, and to be harrowed in. When they have ſhot, and the plants have ſome ſtrength, they are to be thinned. Hoers ſhould be ſent into the field for this purpoſe, and they ſhould have orders not only to cut up what weeds have riſen, but to thin the plants themſelves, leaving them about a foot diſtant, and ſaving ſuch as appear the ſtrongeſt and moſt thriving. From this time no farther care need be taken of them; they will grow quick, and being ſtrong plants, and thus near to one another, no weeds will be able to get nouriſhment among them. Early in autumn they will begin to flower; and then the field will make a beautiful appearance; there is nothing can exceed the brightneſs and golden hue of the flowers, nor have we any thing of our own growth that comes near them. The plants branch out towards the top, and the upper part of every branch is loaded with flowers, ſo that the whole field is covered, and as it were gilded with them.

The gathering of theſe flowers ſo far reſembles that of ſaffron, that they are to be taken as they open; for if left for ſeveral days together, they will loſe their colour, and that is in a manner their whole value.

For this reaſon as ſoon as there is any number of them open, the pickers, who are in this article the gatherers alſo, are to be ſent into the field. The flowers are not gathered there and picked afterwards, but the whole buſineſs is done at once. The whole tender part of the flower is to be taken, leaving the ſcaly bud. When thoſe which are open are thus carefully picked off, they are to be ſpread upon a large floor in an airy place out of the ſun to dry; and this is all that is to be done to them.

When they are dried in this manner, they look of as beautiful a colour as while growing, and they are ready for ſale without farther care or trouble.

Every day or two the pickers are to be then ſent into the field as at firſt, to gather the flowers as they ſhew themſelves.

felves, and this is to be the method till the whole quantity are blown; one parcel being put to dry after another. The whole parcel being thus prepared by a ſimple and natural drying, is ready for the purchaſer.

If the ſeaſon has been favourable, and the crop have flowered early, ſome ſeeds may ripen; but as this is ſuch a great uncertainty, there is no dependence upon it; and the better method is to grub up the plants as ſoon as the flowers are gathered, that the land may be prepared for ſome other crop.

The dyers are the people who purchaſe the flowers; ſome have idly ſuppoſed they were of the ſame nature with ſaffron, becauſe they reſembled that drug in ſome degree in appearance; but it is ſo far otherwiſe, that as ſaffron is a cordial and ſweat, theſe flowers are a purge, and the ſeeds a vomit.

We have mentioned the only right and honeſt uſe of the flowers of this plant; but there have been ſome, when it was more cultivated than it is at preſent in England, who had a way of mixing it with ſaffron when they worked it in the drying.

How improper this was we may know from the difference of the virtues of one and the other; but there was another reaſon why the farmer never ſhould have done this, which is, that it reduces the price.

The thready part of the Carthamus is narrow, harſh, dry, and paler coloured than the blades of ſaffron; therefore no art can ſo blend them together, as to make them capable of impoſing upon any but the ignorant; it was the inferior ſort of ſaffron made up from the laſt gatherings that they mixed up in this manner, and it reduced the price of this ſtill lower.

One reaſon why the foreign ſaffron is held in ſo much contempt in England is, that there is too often Carthamus among it.

SAFFRON. See CROCUS.

Meadow SAFFRON. See MEADOW SAFFRON.

SAGAPENUM. A concrete juice brought from Alexandria, either in diſtinct tears, or run together in large maſſes. It is outwardly of a yellowiſh colour, internally ſomewhat paler, and clear like horn, grows ſoft upon being handled, and ſticks to the fingers; its taſte is hot and biting; the ſmell diſagreeable, by ſome reſembled to that of a leek, by others to a mixture of aſſafœtida and galbanum.

Sagapenum is an uſeful aperient and deobſtruent; and frequently preſcribed either alone, or in conjunction with ammoniacum, or galbanum, for opening obſtructions of the viſcera, and in hyſterical diſorders ariſing from a deficiency of the menſtrual purgations. It likewiſe deterges the pulmonary veſſels, and proves of conſiderable ſervice in ſome kinds of aſthmas, where the lungs are oppreſſed by viſcid phlegm. It is moſt commodiouſly given in the form of pills; from two or three grains to half a dram, may be given every night or oftner, and continued for ſome time. When ſagapenum is ſcarce, the druggiſts uſually ſupply its place with the larger and darker coloured maſſes of bdellium, broken into pieces; which are not eaſily diſtinguiſhed from it.

SAGE. [*Salvia.*] Officinal ſage, the varieties of which are, The common broad-leaved green ſage; the common culinary red ſage; the broad-leaved hoary balſamic ſage, having the broadeſt leaves of all the ſorts, ſtanding on long foot-ſtalks; wormwood ſage; narrow-leaved hoary ſage, or ſage of virtue; lavender-leaved ſage; variegated green ſage; and variegated red ſage.

Sage is moſt uſually propagated by ſlips, which ſhould be planted about the middle of April in a ſhady border, and watered if the weather be dry.

There are ſeveral other ſpecies of ſage cultivated in gardens for variety, ſome of which want the aſſiſtance of the ſtove and green-houſe occaſionally.

The writers on the materia medica are full of the virtues of ſage, and derive its name from its ſuppoſed ſalutary qualities, (*Salvia ſalvatrix, naturæ conciliatrix—Cur moriatur homo, cui ſalvia creſcit in horto, &c.*) Its real effects are, to moderately warm and ſtrengthen the veſſels; and hence, in cold phlegmatic habits, it excites appetite, and proves ſerviceable in debilities of the nervous ſyſtem. The beſt preparation for theſe purpoſes is an infuſion of the dry leaves, drank as tea; or a tincture, or extract, made with rectified

rectified spirit, taken in proper doses; these contain the whole virtues of the sage; the distilled water and essential oil, only its warmth and aromatic quality, without any thing of its roughness or bitterishness. Aqueous infusions of the leaves, with the addition of a little lemon juice, prove an useful diluting drink in febrile disorders, of an elegant colour, and sufficiently acceptable to the palate.

SAGE *of Jerusalem.* Lungwort.

SAGE-TREE. [*Phlomis.*] A shrubby evergreen plant, of which there are many species; but four, chiefly cultivated in the English gardens. They are all propagated by layers and cuttings.

Wood SAGE. This grows wild in woods and hedges. In smell, taste, and medical virtues, it is more like scordium than sage.

SAGO. The medullary part of the tree is beaten with water, and made into cakes, which are used by the Indians as bread: These reduced into granules, and dried, are the sago brought to us. It is moderately nutritious, though not perhaps superior to our own grain.

SAINTFOIN, or SAINFOIN, the name given by the French, and continued by us, to a species of plant, frequently used for the food of cattle, either fresh or dried; it is called holy-hay, or wholesome hay, from its excellent nutritive quality. The stalks of the plant are commonly about two feet long, but they grow sometimes to five or six feet, and it has tufts of red flowers of three, four, or five inches in length.

This plant will make a forty times greater increase in poor ground than the common turf; and this is owing to having a long perpendicular root, of that kind called tap root, which sinks to a great depth to attract its nourishment. The length of this root is scarce to be credited by any but those who have seen it; it is frequently drawn out of the ground to the length of twelve or fourteen feet, but it is said to be often thirty feet or more in length.

The farmers have a general opinion that this plant never succeeds well in any land where there is not an under stratum of stone, or chalk, or some other hard matter, to stop its running; but that otherwise it spends in root, and comes to nothing above ground. This is an error too gross to need much refutation. It is certain, that the roots being to plants what the stomach and guts are to animals, the more and larger roots any plant has, the more nourishment it receives, and the better it thrives.

Saintfoin always succeeds where its roots run deep, and the best crops of all are produced upon lands where there is no hard under soil to obstruct their passage. An under soil of clay may kill the plants by retaining the water, and chilling and rotting their roots.

The long root of saintfoin has, near the surface, many horizontal roots issuing from it, which extend themselves every way; there are of the same kind all the way down as the roots go, but they grow shorter and shorter all the way. Any dry land may be made to produce this valuable and useful plant, though it be ever so poor, but the richest and best land will produce the best crops of it. The best way of sowing it is by drilling, but the earth must be very well prepared, and the seed well ordered, or else very little of it will grow. The heads of these seeds are so large, and their necks so weak, that, if they be much more than half an inch deep, they are not able to rise through the incumbent mould; and, if they are not covered, they will be malted, as the farmers express it; that is, it will send out its root while it lies above-ground, and be killed by the air; and whether the farmer plants bad seed that will not grow, or good seed that is buried or malted, the event will be the same. The ground will be understocked with plants. A bushel of seed to an acre of land is full twenty seeds to each square foot of land; but as there is some difference in the largeness of the seeds, there is no absolute certainty as to this calculation. The worst seasons for planting it are the beginning of winter, and the drought of summer; the best is the beginning of the spring; and it is always strongest when planted alone, and is not sown together with corn, as is the practice of some farmers. If barley,

St Anthony's Fire. Sea Horse. Saw-wort.

oats, or any other corn, ſown with the ſaintfoin, happen to be lodged afterwards, it kills the young ſaintfoin. If it be planted with any other corn, it is beſt done by drilling in the horſe-hoeing way; in this caſe it is not much liable to be killed by the lodging of the corn, as the drilled corn ſeldom falls at all, and when it does, never falls ſo low as the ſown corn.

The quantity of ſeed to be drilled upon an acre of land will depend wholly upon the goodneſs of it; for there is ſome ſeed of which not one in ten will ſtrike, whereas in good ſeed not one in ten will fail. The method of knowing the goodneſs is, by ſowing a certain number of the ſeeds, and ſeeing how many plants are produced by them. The external ſigns of the ſeeds being good are, that the huſk is of a bright colour, and the kernel plump, of a light grey or blue colour, and ſometimes of a ſhining black. The ſeed may be good, though the huſk be black, as that is owing ſometimes to the letting it receive the wet in the field, not to its being half-rotted in the heap.

If the kernel be cut a-croſs, and appear greeniſh and freſh, it is a certain ſign that it is good. If it be of a yellowiſh colour, and friable, and look thin and pitted, they are bad ſigns. The quantity of ſeeds allowed to the acre in the drill way is much leſs than that by ſowing, and is to be computed according to the number of plants that are to be allowed in that ſpace, allowing for the common caſualties. It is not neceſſary to be exact in this calculation, or to ſay whether two, three, or four hundred plants are to be allowed to a ſquare perch; neither is it poſſible to know before-hand the preciſe number of plants that may live out of thoſe that come up; for ſometimes the grub takes them when they have only the two firſt leaves, and the crop is greatly diminiſhed by this means. Four gallons of good ſeed to an acre of land will cover it with plants, when judiciouſly managed.

Single plants of ſaintfoin make the greateſt crops; but the farmers in general plant them ſo cloſe, that they ſtarve one another. The ſingle plants always run the deepeſt, and thoſe which do ſo will always draw moſt nouriſhment. The plants which ſtand crowded ſtarve one another, and often die after a few years; but the ſingle ones grow to a vaſt bigneſs, and are every year better and better.

The beſt way to calculate how many plants are to be allowed to a perch, is to compute how much hay each ſingle large plant will produce; for if kept ſingle and well cultivated, they will all be large ones. Without culture, theſe plants never arrive at a fourth part of the ſize that they do with it. The hay of a large ſingle cultivated plant will weigh more than half a pound; a hundred and twelve plants upon a ſquare perch, weighing but a quarter of a pound a piece, one with another, amount to two tons to an acre. If ſaintfoin be planted on ſome ſorts of land early in the ſpring and hoed, it will ſometimes produce a crop the following ſummer; in a garden the ſeeds ſown in February will yield plants of two feet high that will flower in the month of June following; and though March be froſty, the young plants ſeldom ſuffer by it. This ſhews that this plant is naturally a quick grower; but the farmers uſually plant it on poor or cold land, and give it too little culture, which makes it backward, and ſlow of growth with them. The poor land, uſually allotted to this plant, alſo makes it generally yield but one crop a year, but on a rich land it will yield two very good crops annually, with a moderate ſhare of culture and management.

The farmer who expects to make a profit of this plant muſt not expect a good crop the firſt year. Nothing is ſo injurious to ſaintfoin as its ſtanding too thick: if it be ſo thick as to cover the ground the firſt ſummer, the plants will ſtarve one another for ever after; but if the owner will be content to place them ſo thinly as to have but a ſmall crop the firſt year, they will increaſe prodigiouſly, and every ſucceeding crop will be better and better. When ſaintfoin is well hoed, it will grow as much in a fortnight as it would otherwiſe do in ſix weeks; and this quick growing is of advantage to it every way, not only making the plants large, but of better nouriſhment to the cattle, whether they are eaten green or made into hay.

The

The proper diſtance to drill this plant for the horſe-hoeing huſbandry is at double rows with eight-inch partitions between them, and thirty-inch intervals between every two and two. Theſe intervals need only be hoed alternately, leaving every other interval for making the hay on. This method of hoeing is of vaſt advantage, and poor land by means of it will always produce two crops a year. The land is always to be perfectly cleared of graſs before the ſowing the ſaintfoin, and the lumps of earth carefully broken. But no harrowing is to be allowed after it is drilled, for that would bury it; and it is not proper to roll it at all, unleſs for the ſake of barley, when they are ſown together; and when that is done, it ſhould be with a light roller, and in dry weather. This ſhould be done lengthwiſe of the rows, and as ſoon as it is drilled; if it is not done at this time it is beſt to ſtay three weeks before it is done, that the necks of the young ſaintfoin may not be broken.

No cattle are to be ſuffered to come in the firſt winter upon the ſaintfoin, after the corn is out among which it was ſown. Their feet would injure it by treading the ground hard, as much as their mouths by cropping it, and it would never come to good. Sheep ſhould not be ſuffered to come at it, even the following ſummer and winter. One acre of drilled ſaintfoin, conſidering the difference of the quantity and goodneſs of the crop, is worth two acres of ſown ſaintfoin on the ſame land, though the expence of drilling be twenty times leſs than that of ſowing. The firſt winter is the time to lay on manure after the corn is reaped off. Pot-aſhes, or the like, are very proper, and a ſmall quantity of them will do, as there are at this time no other plants to partake of the benefit, but the young crop has it all, and the young plants being thus made ſtrong at firſt, will continue ſo, and be long the better for it.

It is obſerved, however, that in the drilling and horſe-hoeing way, there is no neceſſity for any manure at all. Some farmers ſow eight or ten buſhels of the ſeed of ſaintfoin to an acre along with their corn, with intent that it ſhould kill all the other weeds; but the conſequence is, that the plants ſtand cloſe, and ſtarve one another, and are no bigger than where the plant grows wild on the hills in Calabria, where it is ſo ſmall and ſeemingly deſpicable a plant, that it ſeems a wonder that any body ſhould be tempted to think of cultivating it; yet, when rightly managed, it ſeems capable of being as uſeful a plant as any in the world. Where theſe plants ſtand ſo think they draw all the nouriſhment from the ground in a few years, and ſo die, though manured ever ſo carefully. Six or ſeven years ſeem their greateſt duration; whereas, when the ſeed is drilled in, and the plants are horſe-hoed, they will be as ſtrong and vigorous as ever at 30 years ſtanding.

Some people who have turned their thoughts to huſbandry, have been of opinion, that the cytiſus would ſucceed better with us than ſaintfoin; it is probable enough that it would grow well; but the labour of ſheering it would, with us, where the pay of ſervants is ſo dear, run away with the profits of the crop.

Lucerne is another thing which many have thought of introducing among us in the place of ſaintfoin, but it requires ſo much care to ſuit it with a proper ſoil, that, whatever are the profits of it, it never can be ſo general as ſaintfoin.

Saintfoin, ſays Mr. Duhamel, deſerves the farmer's utmoſt attention, as one of the moſt profitable plants he can cultivate. It will do on almoſt any land; and though it ſucceeds beſt in good ſoils, yet it will grow even on dry barren ſpots where ſcarce any other graſs can live, provided its roots be not chilled by a cold clay, or other ſubſtance which retains water; and it has this farther advantage, that it may be mowed at different degrees of ripeneſs, with nearly the ſame profit.

1. It may be mowed before it is in bloom, for it is then admirable food for horned cattle; and when cut thus early, it yields a ſecond crop, which makes ample amends for what was loſt by not letting the firſt come to its full growth. This early cutting is likewiſe attended with another benefit, which is, that it purges cattle in the

beginning of the ſummer, and thereby frees them from diſorders occaſioned by the winter's cold, or dry food.

2. If the weather be rainy, the ſaintfoin may be left ſtanding till it is in bloom; when it ſtill is excellent fodder for cows. But care muſt be taken in making it into hay, that the flowers do not drop off, as they are very apt to do: for cattle are ſo fond of theſe flowers that they often induce them to eat the reſt of the plant.

3. If the rain continues, the ſaintfoin may be left ſtanding till ſome of its ſeeds are formed, and the crop will then be the more plentiful, not only becauſe it will have attained its full growth, but likewiſe becauſe its leaves being more ſubſtantial, diminiſh leſs in drying. It is not indeed, then, quite ſo ſweet as before; but horſes eat it readily, becauſe they love to feel between their teeth the ſeeds, which now begin to be formed.

Mr. Tull ſays, this fodder is ſo excellent, that horſes need no oats when they are fed with it. He affirms, that he kept a team of horſes with it a whole year in good plight, without giving them any oats, though they were worked hard all the time. He adds, that he fattened ſheep with it in leſs time than others which were fed with corn. But the hay of this plant can never be ſo good as when it is cultivated with the horſe-hoe; for in the common huſbandry, it bloſſoms almoſt as ſoon as it is out of the ground.

4. If the ſeaſon continues rainy, it may be more adviſeable to let the ſaintfoin remain ſtanding, than to run the hazard of having it rot upon the ground; for then the ſeed will ripen, and nearly make up for the loſs of the fodder; not only becauſe it will fetch a good price, but alſo becauſe two buſhels of it will go as far in feeding of horſes, as three buſhels of oats; and cattle in general, as well as poultry, are extremely fond of it.

The firſt of theſe ſorts of ſaintfoin hay, cut before the bloom, is Mr. Tull's virgin hay, which, he ſays, is the beſt beyond compariſon, and has not its equal in the world except lucerne. He gives the next place to the ſecond ſort, cut whilſt in bloom, and ſays that an acre of land, well cultivated, may yield three tons of this bloſſomed hay; and he eſteems the third ſort, which he calls the full-grown, many degrees inferior to either of the former; though it yields a greater crop, becauſe it has grown to its full bulk, and ſhrinks but little in drying.

Even the ſaintfoin that has yielded its ſeed may be cut down and dried; and when other fodder is ſcarce, this will be better food for horſes and large cattle, than the coarſe hay of flowed meadows, or any kind of ſtraw.

The manner of making ſaintfoin hay is thus directed by Mr. Duhamel.

In a day or two after the ſaintfoin has been mowed, it will be dry on the upper ſide if the weather be good. The ſwarths, or mowed rows, ſhould then be turned, not ſingly, but two and two together; for by thus turning them in pairs, double the ſpace of ground is left betwixt pair and pair, and this needs but once raking, whereas, if the ſwarths were turned ſingly, that is, all the ſame way, the ground would require as much raking again.

As ſoon as both ſides of the ſwarths are a little dry, they ſhould be made up into ſmall cocks the ſame day they are turned, if poſſible; for when the ſaintfoin is in cock, a leſs part of it will be expoſed to the injuries of the night, than when it lies ſcattered upon the field. The ſun and dew would exhauſt almoſt all its juices in this laſt caſe, in leſs than a week's time.

Theſe little cocks of ſaintfoin may be ſafely made into larger ones, without waiting for their being ſo thoroughly dry as thoſe of common hay ought to be before they are laid together; becauſe common hay, by ſinking down cloſer, excludes the air neceſſary for keeping it ſweet; ſo that if the weather prevents its being frequently ſtirred and opened, it will heat, turn yellow, and be ſpoiled; whereas ſaintfoin, by admitting the air more freely, becauſe its ſtalks are leſs flexible, will remain much longer without any danger of fermenting.

Saintfoin hay is never better than when it has been dried by the wind only, without the aſſiſtance of the ſun. A little rain, or a miſt, which will turn common hay or clover, and even lucerne black, will do no hurt to ſaintfoin, which is not really ſpoiled till it

rots

rots upon the ground. If the weather threatens rain, and the ſaintfoin is not yet dry, it may be laid in cocks, without fear of its heating, provided a large baſket, or buſhy tagget, be ſet up in the middle of each cock, where it will ſerve for a vent-hole, through which the ſuperfluous moiſture of the hay will tranſpire.

As ſoon as all danger of heating is over, theſe cocks ſhould be made into ricks, and thatched. That which is laid up quite dry, will come out of the rick of a green colour; that which has heated much in the rick, will look brown.

It requires ſome experience to know at what degree of ripeneſs it is beſt to cut the ſeeded ſaintfoin; becauſe all its ſeeds do not ripen at the ſame time. Some ears bloſſom before others; every ear begins bloſſoming at its lower part, and continues to blow gradually upward, for many days; ſo that before the flower is gone off at the top, the ſeeds are almoſt filled at the bottom. By this means, if the cutting be deferred till the top ſeeds are quite ripe, the lower, which are the beſt, would ſhed and be loſt. The beſt time, therefore, to cut it, is when the greateſt part of the ſeed is well filled, the firſt blown ripe, and the laſt blown beginning to be full. The unripe ſeeds will ripen after cutting, and be in all reſpects as good as thoſe that were ripe before. Some for want of obſerving this, have ſuffered their ſaintfoin ſeed to ſtand till all of it has ſhed, and been loſt in cutting.

Saintfoin ſhould never be cut in the heat of the day, while the ſun ſhines out; for then much, even of the unripe ſeed, will ſhed in mowing. The right time for this work is the morning or the evening, when the dew has rendered the plants ſupple.

If the weather is fine and clear, the ſaintfoin will ſoon dry ſufficiently in the ſwarths, without turning them; but if any rain has fallen, and there is a neceſſity for turning them, it ſhould be done very gently while they are moiſt, and not two ſwarthed together, as in the other hay made of ſaintfoin before it has ſeeded. If the ſwarths are turned with the handle of the rake, it is beſt to raiſe up the ear-ſides firſt, and let the ſtub-ſide reſt on the ground in turning; but if it is done with the teeth of the rake, let the ſtub-ſide be lifted up, and the ears reſted on the earth.

If ſaintfoin be cocked at all, the ſooner it is done the better, becauſe if the ſwarths are dry, much of the ſeed will be loſt in ſeparating them, the ears being entangled together. When moiſt, the ſeed ſticks faſt in the ear; but when dry, it drops out with the leaſt touch or ſhaking.

There are two ways of thraſhing it, the one in the field, the other in the barn. The firſt cannot be done but in very fine weather, and while the ſun ſhines in the middle of the day. The beſt manner of performing this is to have a large ſheet pegged down to the ground for two men to thraſh on with their flails, while two others bring them freſh ſupplies in a ſmaller ſheet, and two more clear away the hay that has been thraſhed. The ſeed is emptied out of the larger ſheet, and riddled through a large ſieve, to ſeparate it from the chaff and broken ſtalks; after which it is put into ſacks and carried into the barn to be winnowed. Care ſhould be taken not to let the hay get wet, becauſe it would then be ſpoiled.

A very important, and at the ſame time very difficult article is, the keeping of the ſeed that has been thraſhed in the field, without ever having been wetted. If it be winnowed immediately, and only a little of it laid amidſt a great heap, or put into a ſack, it will ferment to ſuch a degree in a few days, that the greateſt part of it will loſe its vegetative quality. During that fermentation, it will be very hot, and ſmell ſour. Spreading it upon a barn floor, though but ſeven or eight inches thick, will anſwer no end, unleſs it be frequently and regularly turned both day and night, until the heating is over; but even this will not make its colour keep ſo bright as that which is well houſed, well dried, and thraſhed in the winter. This laſt, laid up unthraſhed, will keep without any danger of ſpoiling, becauſe it does not lie cloſe enough to heat. The beſt way to preſerve the ſeed thraſhed in the field is, to lay a layer of ſtraw upon a barn floor, and upon that a thin layer of ſeed, then another

another layer of ſtraw, and another layer of ſeed, and ſo on alternately. By this means the ſeed mixing with the ſtraw, will be kept cool, and come out in the ſpring with as green a colour as when it is put in.

SALEP, A celebrated reſtorative among the Turks, is probably the prepared root of certain plants of the orchis kind. This drug, as ſometimes brought to us, is in oval pieces, of a yellowiſh white colour, ſomewhat clear and pellucid, very hard, and almoſt horny, of little or no ſmell, and taſting like gum tragacanth. Satyrion root, boiled in water, freed from the ſkin, and afterwards ſuſpended in the air to dry, gains exactly the ſame appearance; the roots thus prepared, diſſolve in boiling water into a mucilage. Geoffrey, who firſt communicated this preparation of orchis, recommends it in conſumptions, in bilious dyſenteries, and diſorders of the breaſt proceeding from an acrimony of the juices.

SALLENDERS. A diſeaſe in horſes, conſiſting in cracks in the bending of the hough, and occaſion a lameneſs behind. This diſeaſe is cured in the ſame manner as the mallenders. *See* MALLENDERS.

SALT-MARSHES. Paſture-lands lying near the ſea, and ſometimes overflowed by the ſea-water.

"It has been obſerved," ſays an ingenious writer in the Muſeum Ruſticum, "that horſes and black cattle thrive better, and get fat ſooner, in ſalt-marſhes, than in freſh-water meadows or upland paſtures; yet I do not remember ever to have heard any good reaſon aſſigned for it.

"Some will tell you that the air of the ſea whets their appetites; that the paſture is rich and nouriſhing; and that the herbs produced by the lands near the ſea are more conducive to the health of herbaceous animals, than ſuch as grow on upland paſtures, whether natural or artificial.

"But may we not rather attribute the thriving of cattle on theſe marſhes, to the ſaline particles with which the earth as well as its produce is, when near the ſea, ſtrongly impregnated? Perhaps even the dews have their portion of ſalt; but of this I have made no experiment, therefore mention it only as a probable conjecture; for as they fall ſoon after they are exhaled from the ſea, without paſſing through the ſecretions neceſſary to ſeparate their ſaline parts, why ſhould not this be the caſe?

"But to return to my firſt ſubject: I am fully of opinion, that the ſaline particles only, with which the graſs is impregnated in the above-mentioned marſhes, cauſe cattle to thrive in them in the manner they are known to do. Theſe ſalts purge away the foul humours which the beaſts have contracted, either by idleneſs, or by being over-heated in labour; by which means they are better diſpoſed to be nouriſhed by the aliment they receive.

"It may perhaps be objected, that if the graſs of theſe marſhes is apt to purge cattle, this very purging, by being long continued, will be a means of preventing their growing fat. To this I anſwer, that the cattle take with their food every day nearly the ſame quantity of theſe purgative particles; but that the quantity of ſalt, which at their being firſt put into the marſh will have that effect, will ceaſe producing it when they are by cuſtom habituated to take a daily portion of it; this muſt be allowed, as we all know, that a few grains of rhubarb will operate as a cathartic to a perſon that is not accuſtomed to take it; yet it is as well known, that a man may take many grains daily, if he uſes himſelf to it, without its being ſenſibly purgative to him.

"It is not convenient to every one to ſend their cattle to a ſalt-marſh: would it not, therefore, be happy, if we could ſubſtitute a method that would nearly anſwer the ſame purpoſe? I do not think this impoſſible; perhaps if common ſalt-water were to be laid in the fields for horſes to lick as often as they pleaſed, they would thrive much better; were I to ſay I know it would have that effect, it would be no preſumption.

"Cattle are all naturally fond of ſalt, and if left at their liberty, will take no more of it than what will do them good. With this help, our freſh-water meadows, and natural and artificial paſtures, would yield us a greater profit, and of courſe be worth more to the land-holder and farmer.

"Some

" Some will not allow a thing to have merit, unleſs it is ſupported by what they call a proper authority; and they do not allow the experiments of a particular perſon to be ſufficient. To ſatisfy ſuch, I can aſſure you, that in the inland parts of Switzerland, when their horſes and cattle have endured the hardſhips of a long and ſevere winter, they turn them in the ſpring looſe into the mountains, laying ſalt here and there upon the rocks, for them to reſort to when they pleaſe; and of this they are ſo fond, that when the farmers want to catch their horſes, they take ſome ſalt in their hats, as we do oats in a ſieve, to allure them.

" Experience has long convinced them, that the ſalt thus laid in their way anſwers every good purpoſe; their cattle are more healthy in general than ours are in England, and almoſt to this alone do they attribute it.

" In the province of Munſter and Connaught, in Ireland, they very frequently lay ſalt on ſlates, for the benefit of their horſes when at graſs: this they find does the cattle great ſervice, and in this we ſhould imitate them, and not be too proud to learn of them, becauſe in Ireland Agriculture is not in ſo flourithing a ſtate as in England.

" Some few farmers have (to do them juſtice) practiſed this method in our own country; but, contenting themſelves with the profit reſulting from it, they have not propagated the knowledge or the many advantages they are ſenſible may be derived from this practice of giving ſalt to cattle.

" The farriers and horſe-jockeys know well the uſe of ſalt; they mix it often in their medicines, and find by experience, that nothing proves ſo powerful a ſtomachic to horſes, as a little ſalt thrown into their oats.

" I muſt farther obſerve, that the uſe of ſalt is very proper when cattle are turned into clover, lucerne, or coleſeed, to feed; it is well known, that on theſe occaſions they are very apt, unleſs great care is taken, to be ſurfeited; the ſalt would prevent this accident, and thereby greatly accelerate the fattening of the cattle, and make it much ſafer to the farmer.

" Salt has alſo been found to be of great ſervice in fattening hogs, by cauſing them to drink more plentifully than otherwiſe they would."

SALTWORT. Glaſſwort.

SALLOW. [*Salix.*] The ſorts are, 1. The common willow, with acute-pointed rough leaves. 2. The white willow. 3. Yellow, or golden willow. 4. The purple, or red willow. 5. The oſier willow. 6. Broad-leaved ſweet-ſcented willow, with five ſtamina. 7. Willow, with ſmooth ſawed leaves, and three ſtamina. 8. Almond leaved willow. 9. Crack willow. 10. Babylonian, or weeping willow; with ſeveral others, as Norfolk willow; the upland red willow; Dutch oſier; white oſier, &c. The flowers of all are katkins; from the ſides of the branches they are all eaſily propagated by cuttings or layers; the former when deſigned for pollards, and the latter when intended for trees.

SAMPHIRE. [*Crithmum.*] This plant grows wild on rocks, and in maritime places; the leaves are ſomewhat like thoſe of fennel, but the ſegments much thicker and ſhorter; their ſmell reſembles that of ſmallage; the taſte is warm, bitteriſh, not agreeable. They are ſaid to be ſtomachic, aperient, and diuretic.

SANICLE, [*Saniculæ.*] This plant grows wild in woods and hedges, and flowers in May. The leaves have an herbaceous, roughiſh taſte; they have long been celebrated for *ſanative* virtues, both internally and externally: nevertheleſs, their effects, in any intention, are not conſiderable enough to gain them a place in the preſent practice.

Bear's Ear SANICLE. [*Cortuſa.*] This plant grows naturally on the Alps, and the mountains of Auſtria, and Siberia; it is propagated by parting the roots as for the auricula.

SAND. A genus of foſſils found in minute concretions, forming together a kind of powder, the genuine particles of which are all of a tendency to one determinate ſhape, and appear regular, though more or leſs complete concretions; not to be diſſolved or diſ-united by water, or formed into a coherent maſs by means of it, but retaining their figure in it; tranſparent, vitrifiable by extreme heat, and not

not diſſoluble in, nor effervescing with acids.

Theſe are ſubject to be variouſly blended and intermixed either with homogene, or heterogene particles, particularly with flakes of talc; and according to theſe, and their different colours, are to be ſubdivided into ſeveral kinds, as red, white, &c.

Dr. Liſter divides the Engliſh ſands into two claſſes: The firſt, ſharp, or rag ſand, conſiſting of ſmall tranſparent pebbles, naturally found on the mountains, and not calcinable; theſe he farther divides into fine and coarſe, and ſubdivides each, according to the colours, into white, grey, reddiſh, brown, &c.

The ſecond, ſoft or ſmooth, which he ſubdivides into that with flat particles broken from lime-ſtones, that with ſilver-like particles, and that with gold like particles.

As to ſand, its uſe is to make the clayey earth fertile, and fit to feed vegetables, &c. for earth alone, we find, is liable to coaleſce, and gather into an hard coherent maſs, as is apparent in clay; and earth thus embodied, and as it were, glued together, is no-ways diſpoſed to nouriſh vegetables; but if with ſuch earth, ſand, &c. i. e. hard cryſtals, which are not diſſolvable in water, and ſtill retain their figure, be intermixed, they will keep the pores of the earth open, and the earth itſelf looſe and incompact, and by that means give room for the juices to aſcend, and for plants to be nouriſhed thereby.

Thus a vegetable, planted either in ſand alone, or in a fat glebe, or earth alone, receives no growth or increment at all, but is either ſtarved or ſuffocated; but mix the two, and the maſs becomes fertile. In effect, by means of ſand, the earth is rendered in ſome manner organical; pores and interſtices being hereby maintained, ſomething analogous to veſſels, by which the juices may be conveyed, prepared, digeſted, circulated, & at length excerned, and thrown off into the roots of plants.

Grounds that are ſandy and gravelly eaſily admit both of heat and moiſture; but then they are liable to theſe inconveniencies, that they let them paſs too ſoon, and ſo contract no liga-

ture, or elſe retain it too long, eſpecially where there is a clay bottom; and by that means it either parches or chills too much, and produces nothing but moſs, and cankerous infirmities; but if the ſand happens to have a ſurface of good mould, and a bottom of gravel, or looſe ſtone, tho' it do not hold the water, it may produce a forward ſweet graſs; and tho' it may be ſubject to burn, yet it quickly recovers with the leaſt rain.

Sea ſand is accounted a very good compoſt for ſtiff ground, for it effects the two things following, viz. it makes way for the tree or ſeed to root in ſtiff ground, and makes a fume to feed it.

Sand, indeed, is apt to puſh the plants that grow upon it early in the ſpring, and makes them germinate near a month ſooner than thoſe that grow upon clay, becauſe the ſalts in the ſand are at full liberty to be raiſed and put into motion upon the leaſt approach of the warmth of the ſun; but then, as they are haſty, they are ſoon exhaled and loſt.

It is remarkable, that ſand, though it appear a very hard, denſe, and indiſſoluble body, yet is contained inviſibly in the brine, or ſalt water of our ſalt ſprings; and even on the ſhooting of the ſalt after evaporation, there ſtill remain the particles of it in the clear pellucid ſalt; and this, though wholly ſoluble in water, yet when a brine made by ſuch a ſolution is boiled, depoſits as much of the ſand as the common brine of the pits, or ſea-water.

Dr. Plot, who was very curious to know the true hiſtory of this ſingular effect, procured experiments to be made in the following manner: Eight folds of fine holland, and as many of finer cambrick, were put together, and a quantity of the brine of the Staffordſhire ſalt pits being ſtrained thro' this, there was nothing ſeparated from it but a ſmall quantity of black duſt, which ſeemed to have fallen in by accident, and which was not at all like ſand; yet, on evaporating this brine, it was found to contain no leſs than one fourth part as much ſand as ſalt; the quantity of brine, yielding a buſhel of ſalt, yielding alſo a peck of ſand.

Some have ſuppoſed from theſe, and the like obſervations, that the ſand was generated during the time of the boiling

boiling the liquor, but the more careful examiners think otherwiſe; it appearing to them that the particles of this ſand may be ſeen in the brine by the help of a microſcope, before the boiling, in form of rectangular oblong plates, ſome nearly ſquare; theſe were ſo ſmall as readily to paſs the ſtrainer with the water, and appearing as numerous in it after, as before the ſtraining, ſhew that they are no more to be kept by ſuch means than the ſalt.

The pores of the fineſt ſtrainers, examined by the microſcope, appear twenty times bigger than theſe plates, or particles of the ſand, and therefore it is not to be wondered at, that they let them through. There requires, therefore, no more to the formation of the ſand, than the coaleſcing of ſeveral of theſe particles into one larger granule, and ſo on; and this is very likely to be done by means of the evaporation of a part of the fluid which kept them ſeparate, and of the motion given to them in boiling, which naturally and neceſſarily brought them into the ſpheres of their own mutual attractions, at a time when their attraction with the fluid they ſwam in was alſo much diminiſhed with its quantity. This attraction ſeems even evidently to increaſe between the particles as the water becomes evaporated, and when finally the ſalt is drawn from it, and it is examined as it drops from the baſkets in which the ſalt is put to drain, it is ſeen to contain more numerous particles of this ſandy matter than before; and theſe are found to coaleſce into yet larger concretions by degrees, as the remainder of the fluid evaporates from them on the glaſs.

The particles of this ſtony matter, when once thus united, are no more to be ſeparated by water, nor is the matter any longer ſoluble in that fluid. The common ſpar found in form of ſtalactites and incruſtations on the roofs, walls, and floors of old caverns, ſhews that it was once diſſolved in water, and by that means brought to thoſe places, and made into thoſe forms; and it ſhould ſeem that this ſand, as it is called, was only this ſort of ſpar, which is contained more or leſs in all water; and which, on the evaporating of that water, and ſeparating the ſalt, which might help in making the water a menſtruum proper for the retaining it, ſhoots out into its own natural concretions; for the figure of theſe thin plates is the true and natural thin parallellopiped or rhomboidal figure of the ſmaller concretions of that matter, and even of thoſe pieces into which it falls on breaking.

Common ſand is a very good addition by way of manure to all ſorts of clay lands; it warms them, and makes them more open and looſe. The beſt ſand for the farmer's uſe is that which is waſhed by rains from roads or hills, or that which is taken from the beds of rivers; the common ſand that is dug in pits never anſwers nearly ſo well. Sand mixed with dung is much better than laid on alone; and a very fine manure is made by covering the bottom of ſheep-folds with ſeveral loads of ſand every week, which are to be taken away and laid on cold ſtiff lands impregnated as they are with the dung and the urine of the ſheep.

Beſides clay land, there is another ſort of ground very improveable by ſand; this is that ſort of black ſoggy land on which buſhes and ſedge grow naturally, and which they cut into turf in ſome places. Six hundred loads of ſand being laid upon an acre of this land, according to the Cheſhire meaſure, which is near double the ſtatute acre, meliorate it ſo much, that without ploughing, it will yield good crops of oats or tares, though before it would have produced ſcarce any thing. If after this crop is taken off, the land be well dunged and laid down for graſs, it will yield a large crop of ſweet hay.

Once ſanding this land will improve it for a vaſt number of years, and it will yield two crops of hay in the year, if there be weather to make it in. Some land in Cheſhire has been by this means rendered of twelve times its former value to the owner. The bogs of Ireland, when drained, have been rendered very fruitful land, by mixing ſand in this manner among the earth, of which they conſiſt. Add to this, that in all the boggy lands, the burning them, or firing their own turf upon them, is alſo a great advantage.

The common peat, or turf aſhes, mixed with the ſand for theſe purpoſes, add greatly to its virtue.

Sea ſand, which is thrown up in creeks and other places, is by much the richeſt of all ſand for manuring the earth; partly its ſaltneſs, and partly the fat and unctuous filth that is mixed among it, give it this great virtue. In the weſtern parts of England, that lie upon the ſea-coaſts, they make very great advantages of it. The fragments of ſea-ſhells alſo, which are always in great abundance in this ſand, add to its virtues; and it is always the more eſteemed by the farmers the more of theſe fragments there are among it.

The ſea ſand uſed as manure in different parts of the kingdom is of three kinds: that about Plymouth, and on other parts of the ſouthern coaſts, is of a blue grey colour, like aſhes, which is probably owing to the ſhells of muſcles, and other fiſh of that or the like colour, being broken and mixed among it in great quantity. Weſtward, near the land's end, the ſea ſand is very white, and about the iſles of Scilly it is very gliſtering, with ſmall particles of talc; on the coaſt of the north ſea the ſand is yellowiſh, brown, or reddiſh, and contains ſo great a quantity of fragments of cockle-ſhells, that it ſeems to be chiefly compoſed of them. That ſea ſand is accounted the beſt which is of a reddiſh colour; the next in value to this is the bluiſh, and the white is the worſt of all.

Sea ſand is beſt when taken up from under the water, or from ſand banks which are covered by every tide.

The ſmall grained ſand is moſt ſudden in its operation, and is therefore beſt for the tenant who is only to take three or four crops; but the coarſe or large-grained ſand is much better for the landlord, as the good it does laſts many years.

Where the ſand is dredged out of the ſea, it is uſually twice as dear as where it is taken from the ſand banks.

When the land has been well manured with the large ſand, they take four crops of corn from it, and then lay it down for paſture for ſix or ſeven years before they plough it again. The graſs is ſo good, that they commonly mow it for hay the firſt year; it always abounds very much with the white-flowered clover. If the graſs grows but ſhort, it is the farmer's intereſt to feed his cattle upon it, and it will turn to as good account this way, being very ſweet and rich, and making the cattle fat, and the cows yield a very large quantity of milk.

SAP. A juice furniſhed by the earth, and changed into the plant, conſiſting of ſoſſil, ſaline, aërial, and other particles from putrified animals, vegetables, &c.

SARCOCOLLA. A concrete juice, brought from Perſia and Arabia, in ſmall, whitiſh, yellow grains, with a few of a reddiſh, and ſometimes of a deep red colour, mixed with them; the whiteſt tears are preferred, as being the freſheſt: Its taſte is bitter, accompanied with a dull kind of ſweetneſs. This drug diſſolves in watery liquors, and appears to be chiefly of the gummy kind, with a ſmall admixture of reſinous matter. It is principally celebrated for conglutinating wounds and ulcers, a quality which neither this, or any other drug, has a juſt title to. It is an ingredient in the *pulvis e ceruſſa compoſitus*.

SASSAFRAS. See BAY.

SATTINFLOWER. See HONESTY

SATYRION. See DOGSTONES.

SAUCE-ALONE. See HEDGE MUSTARD.

SAVIN. See JUNIPER. This is a warm irritating aperient medicine, capable of promoting ſweat, urine, and all the glandular ſecretions. The diſtilled oil is one of the moſt powerful emmenagogues, and is found of good ſervice in obſtructions of the uterus, or other viſcera, proceeding from a laxity and weakneſs of the veſſels, or a cold ſluggiſh indiſpoſition of the juices.

SAVORY. [*Saturcia.*] A plant much cultivated in the kitchen-garden, and is of two ſorts, viz. ſummer and winter ſavory, the uſes of both which are nearly the ſame.

The former is an annual plant, raiſed only from its ſeed, which ſhould be ſown in the beginning of April, in a bed of looſe and light earth. If the plants are not intended to be removed, their ſeeds ſhould be ſcattered thinly; but if they are to be tranſplanted, they may be ſown thicker. They muſt

muſt be kept clear from weeds, and are in other reſpects to be treated as marjoram.

Winter ſavory may be propagated from ſeeds ſown at the ſame time as thoſe of the ſummer ſort; or by ſlips off its roots, for theſe are perennial, and will laſt ſeveral years; but as they do not put forth equally tender or well furniſhed ſhoots after they are grown old, the beſt way is to raiſe a ſupply of young plants every other year. The ſlips of the winter ſavory will ſoon take root and flouriſh; and they, as well as the plants of this ſpecies raiſed from ſeed, will endure the greateſt cold of our winters, and have the moſt aromatic ſmell and taſte, when they are planted in a poor and dry ſoil. Wet ground is very apt to render them mouldy, and conſequently make them rot. Mr. Miller has noticed ſome of theſe plants growing upon the top of an old wall, where they were fully expoſed to the cold, and they there ſurvived ſuch ſevere froſts as killed moſt of thoſe of the ſame kind that were planted in the ground.

The winter ſavory flowers in June, and the ſummer ſavory in July; but the ſeed of both ripen in the autumn, and at no great diſtance of time from each other.

SANDERS. [*Santalum.*] There are three ſpecies of this wood, the white, the yellow, and the red. The firſt is of little value; the ſecond has a pleaſant ſmell, and a bitteriſh aromatic taſte, and though but little regarded might be applied to valuable purpoſes. The red is principally uſed as a colouring drug.

SAW-WORT. [*Serratula.*] There are ſeveral ſpecies of this plant propagated in the gardens, and growing wild, ſome annual and ſome perennial; the former are propagated by ſeeds, and the latter by parting their roots.

SAXIFRAGE. [*Saxifraga.*] The common white ſaxifrage grows naturally in moſt parts of England. The roots of this plant are like grains of corn, of a reddiſh colour without, from which ariſe kidney-ſhaped hairy leaves, ſtanding upon pretty long foot-ſtalks. The ſtalks are thick, a foot high, hairy, and furrowed; theſe branch out from the bottom, and have a few ſmall leaves like thoſe below, which ſit cloſe to the ſtalk; the flowers terminate the ſtalk, growing in ſmall cluſters: they have five ſmall white petals, incloſing ten ſtamina and the two ſtyles. The roots and leaves of this plant are uſed in medicine.

There are many ſpecies of this plant cultivated in the gardens, and growing naturally in England; among them is reckoned the None-ſo-pretty, or London-Pride. They are all cultivated by parting the roots, or by off-ſets.

Burnt SAXIFRAGE. [*Pimpinella.*] There are three ſorts principally noticed by medical writers. 1. The large or white ſaxifrage. 2. Two others ſmaller; but they all ſeem to be poſſeſſed of the ſame qualities, and to differ only in external appearance: and even in this, their difference is ſo inconſiderable, that Linnæus has joined them into one, under the general name of *pimpinella*. Our college, inſtead of the firſt, which has been generally underſtood as the officinal ſort, allow either of the others (which are more common) to be uſed promiſcuouſly.

The roots of pimpinella have a grateful, warm, very pungent taſte, which is entirely extracted by rectified ſpirit; in diſtillation, the menſtruum ariſes, leaving all that it had taken up from the root united into a pungent aromatic reſin. This root promiſes, from its ſenſible qualities, to be a medicine of conſiderable utility, though little regarded in common practice; the only officinal compoſition in which it is an ingredient, is the *pulvis ari compoſitus*. Stahl, Hoffman, and other German phyſicians, are extremely fond of it, and recommend it as an excellent ſtomachic, reſolvent, detergent, diuretic, diaphoretic, and alexipharmac. They frequently gave it, and not without ſucceſs, in ſcorbutic and cutaneous diſorders, foulneſs of the blood and juices, tumours and obſtructions of the glands, and diſeaſes proceeding from a deficiency of the fluid ſecretions in general. Boerhaave directs the uſe of this medicine in aſthmatic and hydropic caſes, where the ſtrongeſt reſolvents are indicated; the form he prefers is a watery infuſion; but the ſpirituous tincture poſſeſſes the virtues of the root in much greater

perfection. There is another ſpecies of pimpinella called *nigra*, from its root being externally of a bright black colour, whilſt thoſe of the foregoing ſorts are whitiſh; this is remarkable for its yielding an eſſential oil of a blue colour. It grows wild in ſome parts of Germany, Swiſſerland, &c. and is now and then met with in our gardens.

Golden SAXIFRAGE. [*Chryſoſplenium.*] There are two ſorts, one with alternate, and the other with oppoſite leaves. Theſe two plants are found wild in ſeveral parts of England, but eſpecially the firſt, upon marſhy ſpils and bogs, as alſo in moſt ſhady woods, and are ſeldom propagated in gardens, where, if any perſon have curioſity to cultivate them, they muſt be planted in very moiſt ſhady places, otherwiſe they will not thrive. They flower in March and April.

Meadow SAXIFRAGE. See HOG's FENNEL.

SCAB. A diſeaſe incident to ſheep, chiefly occaſioned by a tedious length of wet weather.

"I imagine," ſays Mr. Veſey, "your readers will not be diſpleaſed if I ſhould, with your aſſiſtance, communicate to them a remedy for this diſorder, which I have ſeveral times tried, and almoſt always found to anſwer extremely well.

"Some men, whom I have known to breed and feed a great number of ſheep, have been groſsly miſtaken in their comprehenſion of the nature of this diſtemper, which they raſhly judged to be merely cutaneous; whereas, when a ſheep has the ſcab, the blood is always more or leſs affected by it; therefore the outward applications, which are in general alone reſorted to for a cure, do for the moſt part more hurt than good, by driving in the eruption, and making it fix on the internals, thereby occaſioning the death of the animal.

"Now the true way to treat this diſorder is, firſt to give the animal ſomething inwardly to drive out the eruption; then comes, with propriety, the outward application, which completes the cure by killing the ſcab.

"When a farmer has any of his flock afflicted with the ſcab, let him attend to the directions which follow:

"Take a gallon of ſoft well or pond water, which divide into two equal parts; in one of theſe parts diſſolve eight ounces of old hard ſoap; to which, when it is diſſolved, add two ounces of ſpirits of hartſhorn, and ſeven ounces of common ſalt, with four ounces of roll brimſtone, beat to a fine powder and ſifted; then take the other part of the water, in which put two ounces of tobacco leaf, and one of white hellebore root; boil this ſecond part till you have a ſtrong infuſion, after which ſtrain it clear from the leaves and roots.

"When you have got thus far in the proceſs, take that part of the water, firſt mentioned, and ſet it over the fire; let it boil for about half an hour, keeping it continually ſtirring with a wooden ladle during that time; in the mean time heat again the other part, in which the tobacco and hellebore were infuſed, and when it is hot, mix the two parts gradually together over the fire, keeping the mixture continually ſtirring till it is taken off the fire, which ſhould be in about a quarter of an hour; when it is quite cold, let it be put into a ſtone bottle, in order to its being kept in a cool place for uſe.

"Then take four quarts of new ale or beer; put into it twelve ounces of common ſalt, two ounces of bay ſalt, and eight ounces of powdered nitre, together with twelve ounces of pounded roll brimſtone; ſet them over a gentle fire, and when the ale boils, take off the ſcum; let it boil for about half an hour; after which ſet it by till it is cold, and put it into a ſtone bottle for uſe.

"When you are ſo far prepared, take one quart of ale, ſet it on the fire; mix into it by degrees, three ounces of flour of brimſtone; when it is juſt ready to boil take it off the fire, and let it ſtand to cool; and when it is only blood-warm, give this quantity inwardly to three ſheep, which is to be repeated every ſecond day till they have had three doſes. This will drive out the diſorder, when the firſt mixture is to be rubbed on the diſtempered parts; and two days afterwards the ſecond, and ſo alternately for about eight or ten days, till the cure is effected: Sometimes two rubbings

rubbings will be ſufficient. I muſt obſerve, that all theſe mixtures will be beſt boiled in well glazed earthen or iron pots."

"The two greateſt enemies the ſheep," ſays another ingenious gentleman, "or at leaſt their wool (which is the moſt valuable part of them) have, are the ſcab and fly. I believe they deſtroy more wool than all the other diſeaſes incident to that animal.

"Mr. Veſey has given us an approved remedy for the ſcab, and at the ſame time enters ſomewhat into the nature of the diſtemper. For my own part, I have not preſumption enough to look into firſt cauſes; ſecondary ones are all I aim at; I always took nature to be a wiſe inſtructor, and the ſureſt guide; but if we will hobble out of the way ourſelves, ſhe is not to blame.

"I agree with Mr. Veſey, that in this, and every other diſtemper a ſheep labours under, the blood is more or leſs affected and diſturbed; which diſturbance, if I am not miſtaken, the faculty call a fever; therefore it muſt be always conſidered, that a fever is no more than a ſtruggle of nature to get rid of ſome enemy in the blood, by throwing it out by ſome of the outlets of the body, namely, by ſweat, urine, or ſtool; or upon the ſurface of the ſkin; and then ſhe ſeems to ſay, I have thrown the diſtemper out to your view, and there deſtroy it by proper applications.

"It ſurely is not ſcab until it is thrown out upon the ſkin; and when it is thrown out, what avails giving internal remedies, to do that which nature has done before? If it be out, there's your ailment; and I think, it is an axiom in phyſic, that when a diſtemper is once known, it is half cured; if it is only coming out, my advice would be, not to diſturb nature, who is always acting for our good, in a wiſer and better manner than we can do ourſelves; ſhe ſometimes, indeed, is too weak for her office, and ſometimes too ſtrong; in the one caſe ſhe is to be properly aſſiſted, and in the other, prudently reſtrained; and when we do more or leſs, the effects are generally fatal. I hope this will ſatisfy Mr. Veſey, that he is not altogether in the right, any more than his neighbours.

"To cure an illneſs with a few medicines, is as commendable, as to ſay a great deal in a few words. One great obſtacle to Mr. Veſey's treatment of ſheep with ſcab, is its being too compound, troubleſome, and laborious, ſetting aſide the expence, and where there are a great number of ſheep, hardly to be practiſed. I would have all remedies for the ailments of ſheep be as ſimple as poſſible; and to be obtained and prepared with as little trouble; for certain I am, when it is otherwiſe, many will let their flocks go neglected, or at beſt leave them to a ſlovenly ſhepherd, who knows very little of the matter; and when clip-day comes, when the poor creatures are out of their wool, (if they had any on before) what a ſight preſents itſelf to view! moſt part of their ſkins being one continued ſcab, and other parts eat quite through, and deep into the fleſh, by the maggot: This I have ſeen at clip-day, and may ſpeak it; but what muſt I alledge it was owing to? Sorry am I to ſay, to the over credulity of the maſter, who thought he had a ſhepherd who knew every thing; but the event proved the contrary.

"You muſt not be ſurprized when I ſay, what will deſtroy the fly will alſo cure the ſcab, with little or no alterations; mercury is a mortal foe to both; and the remedy for the fly is as follows:

"Take of corroſive ſublimate, half an ounce; diſſolve it in two quarts of rain water; to which add a gill of ſpirits of turpentine: This is the whole of it, which muſt be uſed in the following manner:

"When the ſheep is ſtruck, the ſhepherd muſt make a circle round the maggots with ſome of the water, by dropping it out of a bottle; this prevents them getting away, for they will not come near the water; then he muſt ſhred or open the wool within the circle, and drop a few drops of the water among them, and rub them about with his finger, and there leave them, for they will all die preſently.

"I ſpeak this from my own certain knowledge, and many others in this part

part of the country (Isle of Ely) can do the same.

"To a quart of the above water I add a pint of the simple lime-water of the London Dispensatory; and I declare it from experience, there is no more certain cure for the scab than it; I am sure it is the cleanest, the soonest prepared, and when so, the cheapest; which are an inducement, I think, sufficient to have every countryman make use of it." *Museum Rusticum*, vol. ii. p. 369.

SCABIOUS. The name of a flowering shrub cultivated in most pleasure gardens.

All the shrubby sorts of scabious may be propagated by cuttings, which may be taken off during any of the summer months, and should be planted in a shady border, and duly watered in dry weather, which will promote their taking root; and then they may be potted and placed in a shady situation, till they have taken new root, after which time they may be placed amongst other hardy exotic plants, in a sheltered situation, where they may remain until the end of October, when they must be moved into shelter. In some favourable seasons these plants will produce good seeds in England, so that the plants may be raised from these, by sowing them in an open border of light earth about the middle of March; and if the spring should prove very dry, it will be necessary to water the ground now-and-then, which will forward the vegetation of the seed, so that the plants will appear in about three weeks after the seeds are sown. When they come up, they must be kept clear from weeds, and in dry weather duly watered; and when they are strong enough to transplant, they should be planted in pots, and managed in the same manner as those plants which are propagated by cuttings.

All the sorts of scabious continue a long time in flower, for which they are regarded; for there is no very great beauty in many of their flowers; but as most of the hardy sorts produce flowers near three months successively, so they may be allowed a place in the borders of large gardens, because they require very little care to cultivate them. And as the shrubby kinds continue in flower most part of the year, so they make an agreeable variety amongst hardy exotic plants in the winter.

SCAMMONY, [*Scammonium.*] Scammony is a concrete juice extracted from the roots of a large climbing plant growing in the Asiatic Turkey. The best comes from Aleppo, in light, spongy masses, easily friable, of a shining ash colour verging to black; when powdered, of a light grey or whitish colour: An inferior sort is brought from Smyrna, in more compact ponderous pieces, of a darker colour, and full of sand and other impurities. This juice is chiefly of the resinous kind: rectified spirit dissolves five ounces out of six, the remainder is a mucilaginous substance mixed with dross: proof spirits totally dissolve it, the impurities only being left. It has a faint unpleasant smell; and a bitterish, somewhat acrimonious taste.

Scammony is an efficacious and strong purgative. Some have condemned it as unsafe, and laid sundry ill qualities to its charge; the principal of which is, that its operation is uncertain, a full dose proving sometimes ineffectual, whilst at others a much smaller one occasions dangerous hypercatharses This difference however is owing entirely to the different circumstances of the patient, and not to any ill quality, or irregularity of operation, of the medicine; where the intestines are lined with an excessive load of mucus, the scammony passes through, without exerting itself upon them; where the natural mucus is deficient, a small dose of this or any other resinous cathartic, irritates and inflames. Many have endeavoured to abate the force of this drug, and correct its imaginary virulence, by exposing it to the fume of sulphur, dissolving it in acid juices, and the like; but this could do no more than destroy as it were a part of the medicine, without making any alteration in the rest. Scammony in substance, judiciously managed, stands not in need of any corrector; if triturated with sugar or with almonds, as is frequently recommended for other resinous purgatives, it becomes sufficiently safe and mild in operation. It may likewise be conveniently dissolved, by trituration, in a strong decoction

coction of liquorice, and then poured off from the feces. The college of Wirtemberg assures us, that by this treatment it becomes mildly purgative, without being attended with gripes, or other inconveniencies; and that it likewise proves inoffensive to the palate. The common dose of scammony is from three to twelve grains.

SCORDIUM. *See Water* GERMANDER.

SCORPION-GRASS. *See* CATERPILLAR.

SCORZONERA. *See Vipers*-GRASS.

SCRATCHES, A distemper incident to the heels of horses.

It has so much affinity with the grease, and is so often a concomitant with that disease, that the method of curing the scratches may be selected from that article.

The parts affected should be first covered with the linseed and turnip poultice, having a little common turpentine added to relax the vessels; the green ointment may then be applied to promote the discharge, when the scratches may be dried up with the ointments and washes recommended in that article.

It is best afterwards to keep the heels supple, and softening with curriers dubbing, which is made of oil and tallow. This will keep the hide from cracking, and be as good a preservative as it is to leather; and by using it often before exercise, will prevent the scratches, if care be taken to wash the heels with warm water, when the horse comes in. When they prove obstinate, and the sores are deep, use the following; but if any cavities or hollow places are formed, they should first be laid open, for no foundation can be laid for healing, till you can dress to the bottom.

Take Venice turpentine four ounces, quicksilver one ounce; incorporate well together by rubbing some time, and then add honey and sheep's suet, of each two ounces.

Anoint with this once or twice a day; and if the horse is full or fleshy, you must bleed and purge; and if the blood is in a bad state, the alteratives must be given to rectify it.

SCULL-CAP. [*Scutellaria.*] There are several species of this plant growing in different parts of Europe and America. They are all propagated by seeds.

SCURVY-GRASS. [*Cochlearia.*] Scurvy-grass is a pungent stimulating medicine; capable of dissolving viscid juices, opening obstructions of the viscera and the more distant glands, and promoting the fluid secretions: it is particularly celebrated in scurvies, and is the principal herb employed in these kinds of disorders in the northern countries. It is propagated by sowing seeds in July in a moist shady spot of ground. The Sea Scurvy-Grass is also used in medicine; but this grows in in the salt-marshes in Kent and Essex, where the salt water overflows it almost every tide, and can rarely be made to grow in a garden, or at least to last longer there than one year; but it being easily gathered in the places before mentioned, the markets are supplied from thence by the herb-women, who make it their business to gather herbs.

The little Welch scurvy-grass is a biennial plant, and may be preserved in a garden, if planted in a strong soil and shady situation. This plant grows plentifully in Muscovy, as also in Davis's Streights.

SCYTHE, SITHE, or SYTHE, The instrument used in mowing, being a crooked blade joined at right-angles to a long pole.

SEA BUCKTHORN. See *Sea* BUCKTHORN.

SEAGRIM. See RAGWORT.

SEAM. Tallow, grease, hog's-lard.

SEAM *of Corn.* A quarter, or eight bushels.

SEAM *of Wood.* A horse-load of wood.

SEARCHER. See BORER.

SEAVES. Rushes.

SEAVY *Ground.* Ground over-run with rushes.

SEED, the product of a plant, whereby the species is propagated.

The choice of the seed intended to be sowed is an object of greater importance than many farmers seem to imagine. It is not sufficient that the finest grains be chosen for this purpose, unless they are likewise very clean. Such wheat is not difficult to be had from land cultivated according to the principles of the new husbandry; but we seldom find corn entirely free from seeds

seeds of weeds when it had been raised in the common way.

It is natural to suppose, that the grains of stinted and sickly corn necessarily partake of the weakly disposition of the plant which produced them, and that their productions cannot be so fine as those which grow from the seeds of strong and healthy plants. For this reason Mr. Tull advises to take the seed corn from a richer soil than that in which it is to be sowed, and rather from ground in perfect tilth, than from land which has been less carefully cultivated. This seems to be very right (tho' the contrary opinion is almost generally received) because more may reasonably be expected from the productions of a fine good seed, full of vigour and well conditioned, than from a poor weak plant.

M. de Chateauvieux, who often sowed with no other intention than merely to try, for the benefit of mankind, at what time, in what manner, and what condition, it is best to sow wheat, found that this grain sprouted pretty well even when sowed so green that it had not yet lost its milky quality; but thinks it much more adviseable to sow none but what is thoroughly ripe; because the seed has then attained its full perfection, from whence we may most certainly expect the best and strongest plants.

"The wheat, says he, which has been reaped in a warm dry year, seems to me fitter for sowing, than that which has been gathered in a cold wet season: for in such a time as this last, all the productions of the earth are less good; their taste is less savoury; and as that corn in particular in which there is most moisture, is most difficult to keep, I infer from thence that the formation of its grain must be less perfect. I should therefore prefer wheat a year old, provided the year it was gathered in was warm and dry, to that which may have been just gathered in too rainy a season; for the same reason, I always choose for sowing, wheat of my high grounds, rather than that which has been produced in flats. The benefit accruing from all this care may, perhaps, not be extremely great; but at the same time it does not cost any thing. Let us do in Agriculture what is done in all manufactures, where the very smallest profits, the very least savings, are not neglected. Those small articles, often repeated, make large sums in the long run, and are a real gain.

"Another thing of greater consequence first made known to me by chance, but since confirmed by repeated experiments always attended with the same success, I strongly recommend as extremely serviceable to the first sprouting of the seed. In my experimental sowings, I commonly used wheat taken from the heap in the granary; and likewise frequently, corn picked out of the ears the moment before I sowed it. I counted exactly the grains of both sorts, and suppose that few will think there could be any difference in their productions. Yet I found a considerable one. What was picked out of the ears always rose extremely well; scarce a grain of it ever missed; whereas numbers of those which were taken from the heap, never sprouted at all. I did not perceive this difference at first; but at last it struck me. I relate the fact as it is, without pretending to account for the cause of this difference, which would lead me into too long a digression. The experiment itself may be of real use, by shewing us, that instead of thrashing the wheat intended for seed at any time, without distinction, it ought not to be thrashed till a very few days, at most two or three, before it is sowed. A few hands will be able to supply the seeds-men with as much as they will want: nor will this method, which may be a means of saving somewhat in the seed, be attended with any extraordinary expence.

"Perhaps too this practice may be attended with a very valuable advantage. I have not yet made the trials necessary to satisfy myself of what I imagine; but my desire to be of service to the public induces me to mention it, that the lovers of agriculture may reflect upon it, and try such experiments as will clear up my conjectures.

"Thrashing the seed only just before it is sowed may possibly, in some measure, or perhaps entirely, prevent the cause of smut in wheat. By this I mean, that the seed which has not been mixed with smutty corn, or any way infected

mixed with ſmutty corn, or any way infected by its black powder, will be exempt from that diſtemper. Not that I take black powder to be abſolutely the original cauſe of this diſtemper in corn; but I believe it is very capable of communicating it to grains which are ſound.

"That nothing may be neglected which can be of any ſervice to the ſeed, great care ought to be taken in thraſhing the corn, eſpecially in the manner that buſineſs is commonly performed, with flails, upon the barn floor: for a great number of grains are frequently ſo much bruiſed thereby, that it is impoſſible they ſhould ever grow. If the wheat thus thraſhed for ſeed is not thoroughly dry and hard, the miſchief is ſtill greater; much more of it being then abſolutely cruſhed by the flail.

"As ſowing in drills requires leſs ſeed than is uſed in the common method, it will be the eaſier to execute there an operation which might be too long and troubleſome for ſo great a quantity as is uſed in the old way. The method which I adviſe, and which I have practiſed, is this. Let one or two beams, two feet and a half, or three feet thick, be laid a-croſs the barn floor: let the thraſhers ſtand on each ſide of the beam, and take out of looſe ſheafs of wheat, one of which ſhould be placed behind every man, a handful at a time, and give it two or three ſtrokes againſt the beam. This will bring out a great deal of grain, which is to be reſerved for ſeed. The ears thus ſhaken may be bundled up again, and afterwards thraſhed out with the flail, for other uſes. This method is not ſo tedious as ſome may imagine: we are ſure that not a grain is bruiſed; and thoſe are the moſt perfect which drop out thus. I think I may compare this operation with what is done in the making of wine, where the firſt running is always the higheſt flavoured and beſt."

Another excellent way to ſeperate the fulleſt, and conſequently heavieſt grains, which are undoubtedly the fitteſt for ſeed, from thoſe which are of leſs value for that purpoſe, and at the ſame time to clear them from many ſeeds of weeds, is, to make a ſtout man, with a broad wooden ſhovel, throw the corn with all his force towards an oppoſite corner of the barn, or rather a large boarded hall, which generally is fitteſt for this work. All the light, ſmall, ſhrivelled grain, unfit for ſowing, and the ſeeds of cockle, darnel, &c. not being ſo heavy as the ſound ſolid corn, will fall ſhort, and lie neareſt to the man who throws them; while ſuch as are large, plump, and weighty, out-flying all the reſt, are ſeparated widely, and may eaſily be gathered up. Experience will ſhew the vaſt advantages of ſowing ſeed thus choſen.

The uſe of ſteeps was introduced very early into huſbandry, not only as a means of preſerving corn from ſeveral diſtempers to which it is ſubject, but alſo with a view to render the ſeed more fruitful. That ſome of them have ſometimes anſwered the former of theſe intentions is undeniable: but with regard to the latter, much ſtronger and oftner repeated evidences than any that have yet been produced, are ſtill wanted to confirm their boaſted efficacy. We ſhall however give a conciſe account of ſome of the moſt famous of both kinds; with this previous obſervation, that even ſuch of them as have not ſucceeded in ſome caſes, through cauſes perhaps unknown to us, may poſſibly do well in others, when tried with proper judgment, and attention. Experiments of this kind ſhould by all means be continued on a double account; firſt, to take off a prejudice which ſeems to gain ground, though it be not founded on any rational principle; and next, to be well aſſured whether theſe preparations do, or do not, produce any ſenſible effect. Experiments ſeldom prove uſeleſs to careful accurate obſervers. If they do not always anſwer the end propoſed, they at leaſt ſometimes lead the way to other important diſcoveries.

The Romans had their lees of oil, decoction of cypreſs leaves, juice of houſe-leek, &c. on which they have beſtowed full as much commendation as they merit. Lord Bacon ſeems to have been the firſt who paid any attention to this ſubject in England: but he has only pointed out the path to others: nor do I know any author

who has yet given us a ſet of experiments with this view, long enough continued abſolutely to determine what effects ſome kind of ſteeps may have towards rendering grain more fruitful.

With regard to the ſeeds of plants ſown in the kitchen-garden, all of them ſhould be gathered in dry weather, when there is not any moiſture upon them; and the beſt way to preſerve them is, to hang them up in bags, in a dry room, where vermin cannot come at them. The temperature of this place ſhould be moderate; leſt either too much warmth, or a too ſtrong current of air, ſhould make them dry, and conſequently decay, ſooner than they would otherwiſe do: and at the ſame time care muſt be taken not to exclude the air totally from them; it having been repeatedly experienced, that ſeeds kept long in bottles cloſely ſtopped have entirely loſt the power of growing. They will keep longeſt in their pods, when they can be ſo laid up, becauſe thoſe coverings not only defend them from the injuries of the outward air, but, ſo long as they are not disjoined from them, continue to ſupply them with a degree of nouriſhment which helps to maintain them in a plump ſtate, fit for vegetation. The ſeed of all ſoft fruits, ſuch as cucumbers, melons, &c. are of courſe excepted from this general rule; for they muſt be well cleanſed from their ſurrounding pulp, the rotting of which would otherwiſe ſoon corrupt them. Thoſe of melons in particular, are ſo far benefited by being kept in a warmer ſtate than would ſuit any others, that the plants produced from them are thereby rendered the leſs luxuriant, and therefore more fruitful: for which reaſon it is that many people carry them in an inner pocket of their breeches for ſix weeks or two months before they ſow them, in order to exhale part of their moiſture; and in effect, this will weaken them as much as two years keeping them in the common way.

Thoſe ſeeds which ſwim upon the ſurface of water, when they are put to that trial of their goodneſs, ſhould be rejected for ſowing; becauſe, though many of them will grow, they never produce ſo good plants, or ſo fine fruit, as the fuller, plumper, and more perfect ones, which ſink to the bottom.

The age at which it is beſt to ſow the ſeeds of the plants before treated of, and the time to which they will keep good, are thus aſcertained by Mr. Miller, after many years experience and very accurate obſervation:—

The ſeeds of aſparagus, baſil, beans, beet, borage, capſicum, carrots, celeri, chervil, creſſes, endive, fennel, finocchia, hyſſop, kidney-beans, lavender, leeks, lentils, marjoram, marigolds, onions, parſley, parſneps, peas, purſlain, radiſhes, ſavory, ſkirrets, ſpinnage, thyme, and turneps, are beſt ſown the firſt ſpring after they have been ſaved; and indeed many of them will not grow if they are kept longer.

Thoſe of cabbages, colliflowers, endive, lavender, lettuce, muſtard, and ſorrel, will not be the worſe for keeping two years, if they are well preſerved; though all of theſe are equally good for uſe the firſt year.

The ſeeds of cabbages, cucumbers, lettuces, melons, and ſavoys, will grow very well at the end of three years, if they have been properly ſaved and kept. Some of them, and particularly thoſe of cucumbers and melons, are generally reckoned beſt when they are three years old; becauſe, when they are new, the plants produced by them will grow too vigorous, and yield but a ſmall quantity of fruit. However, none of theſe ſeeds ſhould be kept longer than four or five years, though they will grow at the end of nine or ten: but then their plants will be weak, and their fruit ſmall.

The ſeeds of fennel will frequently remain in the earth a whole year, eſpecially if they are ſown in the ſpring; ſo that whenever the plants do not come up the firſt year, the ground ſhould be left undiſturbed till the following ſpring, except only keeping it clear from weeds, and the plants will then appear.

SEEDLINGS. Young plants which have not been removed from the beds where they have been ſown. It is alſo uſed to diſtinguiſh plants raiſed from ſeeds from thoſe of the ſame kind which

which have been propagated by layers or cuttings.

SEED-LIP, SEED-LEAP, *or* SEED-LOP. A ſeed-baſket, or the veſſel in which the ſower carries his ſeed, in order to ſow it.

SEELING. A term uſed by horſe-dealers to imply the time when a horſe begins to have white eye-brows; that is, when there grows on that part about the breadth of a farthing, a parcel of white hair, mixed with thoſe of his natural colour. This is a mark of old age, a horſe never feeling before he is fourteen, and always before he is ſixteen years old.

SELF-HEAL, [*Prunella.*] This plant grows wild in meadows and paſture grounds, and produces thick ſpikes of purpliſh flowers during the latter part of the ſummer. It has an herbaceous roughiſh taſte: and hence ſtands recommended in hæmorrhages and alvine fluxes: it has been principally celebrated as a vulnerary, whence its name; and in gargariſms for aphthæ, and inflammations of the fauces.

It is eaſily propagated by ſeeds ſown in autumn. There are ſeveral ſpecies brought from different parts of Europe and America, but all hardy enough to bear the open air of England.

SEGGRUM. Ragwort.

SEMBRADOR, an inſtrument uſed in Spain for ſowing corn.

SEMIFISTULAR *Flowers*, are thoſe whoſe upper part reſembles a pipe cut off obliquely.

SEMIFLOSCULOUS *Flowers*, are thoſe whoſe petals are hollow in their lower part; but in their upper flat, and continued in the ſhape of a tongue.

SEMINARY. A ſeed plat, or place allotted for raiſing plants from ſeed, and keeping them till they are fit to be removed into the garden or nurſery.

SENA. The leaves of a ſhrubby plant cultivated in Perſia, Syria, & Arabia; from whence they are brought, dried & picked from the ſtalks, to Alexandria in Egypt; and thence imported into Europe. They are of an oblong figure, ſharp pointed at the ends, about a quarter of an inch broad, and not a full inch in length, of a lively yellowiſh green colour, a faint not very diſagreeable ſmell, and a ſubacrid, bitteriſh, nauſeous taſte. Some inferior ſorts are brought from Tripoli and other places: theſe may eaſily be diſtinguiſhed by their being either narrower, longer, and ſharper pointed; or larger, broader, and round pointed, with ſmall prominent veins; or large and obtuſe, of a freſh green colour, without any yellow caſt.

Sena is a very uſeful cathartic, operating mildly, and yet effectually; and, if judiciouſly doſed and managed, rarely occaſioning the ill conſequences which too frequently follow the exhibition of the ſtronger purges. The only inconveniences complained of in this drug are, its being apt to gripe, and its nauſeous flavour.

Baſtard SENA. *See* CASSIA.

Bladder SENA. *See* BLADDER SENA.

Jointed Podded SENA, [*Coronilla.*] This is a ſhrubby plant of which there are ſeveral ſpecies differing in height, ſome riſing about two feet from the ground, others trailing on the ground, and one riſing to the height of five or ſix feet. Some are annuals, and others perennial, the latter as well as the former are propagated by ſeeds.

Scorpion SENA. *Jointed Podded Sena.*

SENGREEN. Houſeleek.

SENEKA ROOT. Senecka, rattleſnake root; the root of a ſpecies of *polygala*, which grows ſpontaneouſly in Virginia, and bears the winters of our own climate. This root is uſually about the thickneſs of the little finger, variouſly bent and contorted, and appears as if compoſed of joints, whence it is ſuppoſed to reſemble the tail of the animal whoſe name it bears: a kind of membranous margin runs on each ſide, the whole length of the root. Its taſte is at firſt acid, afterwards very hot and pungent.

This root is not at preſent much known in the ſhops. The Senegaro Indians are ſaid to prevent the fatal effects which follow from the bite of the rattle-ſnake, by giving it internally; and applying it externally to the wound. It has of late been ſtrongly recommended in pleuriſies, peripneumonies, and other inflammatory diſtempers; in theſe caſes, Lemery, du Hamel, and Juſſieu, experienced its good ſucceſs. (ſee the French memoirs for the years 1738, 1739.) Its more immediate effects are thoſe of a diu-

retic, diaphoretic, and cathartic; ſometimes it proves emetic: the two laſt operations may be occaſionally prevented, by giving the root in ſmall doſes, along with aromatic ſimple waters, as that of cinnamon. The uſual doſe of the powder is thirty grains or more.

Some have likewiſe employed this root in hydropic caſes, and not without ſucceſs: Bouvart (in the memoirs above-mentioned, 1744.) relates examples of its occaſioning a plentiful evacuation by ſtool, urine, and perſpiration, and by this means removing the diſeaſe, after the common diuretics and hydragogues had failed: where this medicine operates as a cathartic, it generally proves ſucceſsful: if it acts by liquifying the blood and juices, without occaſioning a due diſcharge, it ſhould either be abſtained from, or aſſiſted by proper additions.

Gum SENECA. This is brought from the coaſt of Guinea, and uſually mixed with, and commonly ſold in the ſhops for Gum Arabic.

SENSITIVE PLANT, [*Mimoſa.*] There are ſeveral kinds more or leſs irritable of this uncommon plant, natives of the Weſt-India iſlands, and the warmer parts of America; ſome of them are annual, and others perennial. They require the ſame general management with other exotics of a warm climate; under this genus of plants are ranged the different ſpecies of Acacia.

SEPTEMBER. The ninth month of the year.

Products of the Kitchen-Garden.

Cabbages, carrots, artichokes, parſneps, potatoes, ſhallots, onions, leeks, garlick, cellery, endive, cabbage lettuce of ſeveral ſorts, ſcorzonera, ſalſafy, muſhrooms, cucumbers for pickling, melons, kidney-beans, rouncival peas, marrowfat peaſe, garden beans planted late, beets, turneps, radiſhes, large rooted parſley, black and white Spaniſh radiſhes, ſprouts from the early cabbage ſtalks; and for ſoups, chervil, ſorrel, tomatos, gourds, ſquaſhes, burnet, cardoon, chard beets, parſley, origanum: as alſo thyme, baſil, marjoram, hyſſop, winter-ſavory, and all ſorts of young ſallet herbs.

Fruits in Prime, or yet laſting.

Peaches; the nivette, Portugal peach, belle-garde or gallande, roſſanna, pourpree tardive, purple alberge, old Newington, teton de Venus, pavy ropal, admirable, monſtruous pavy of Pompone, Catharine, rambouillette, malacoton.

Plums; white pear plum, bonum magnum, green gage, reine claude, perdrigon, St. Catharine, and imperatrice, damſons, and bullace.

Pears; poir de Prince, autumn bergamot, ſwiſs bergamot, brute bonne, beurre-rouge, Doyenne or St. Michael, verte-longue, mouille bouche d'automne, ſummer boncretien, rouſſelet de reins.

Grapes; the chaſſelas, white muſcadine, red muſcadine, black, red, and white morillon, currant or corinth grape, parſley-leaved grape, black, red, and white frontiniacs, Warner's red hamburgh, black hamburgh, St. Peter or Heſperian grape, orleans, malmſey, miller grape, damaſk grape, pearl grape, party-coloured grape, with ſome others.

Several ſorts of figs, walnuts, filberts, hazle-nuts; and, againſt north walls, ſome currants and morella cherries, melons, quinces, medlars, lazaroles.

Apples; embroidered apple, pearmain, golden rennet, red calville, white calville, courpendu, aromatick pippin, rennet griſe, catſhead, quince apple, ſpice apple, with ſome others.

In the bark-bed, the ananas, or pine-apple.

Plants in Flower.

Annual ſtock-gilliflowers, ſcabiouſes, ſweet ſultan, marvel of Peru, female balſamine, china pinks, Africans, French marigolds, hollyhocks, chryſanthemums, capſicums, lupines of ſeveral ſorts, ſweet-ſcented peas, Tangier peas, double ptarmica or ſneezwort, true ſaffron, carthamus or baſtard ſaffron, autumnal crocuſes, cyclamens, colchicum, autumnal hyacinth, aſters of ſeveral ſorts, five or ſix ſorts of golden-rod, double ſopewort, double camomile, larkſpurs, tree primroſe, polyanthuſes, ſpiderwort, auriculas, ſnap-dragon, Venus looking-glaſs, Venus navelwort, candy tuft, China ſtarwort, ox-eye, helianthemums,

themums, heliotropium, lychnifes, campanulas, autumnal gentians, fcarlet bean, oriental perficaria, ftramoniums, folanums, alkekengi with large blue flowers, fantolinas, chryfocoma, chelone with white and red flowers, poliums, amaranthoides, xeranthemums, jaceas, oriental mallow, lavatera, dwarf annual ftock, ketmia veficaria, feveral forts of fun-flower, elichryfums, eupatoriums, hearts-eafe, red garden valerian, catanance quorundam, ruyfchiana, rudbeckia, filphium, large blue aconite, wholfome wolffbane, cerinthe, alyffon fruticofum, alyffoides, dianthera, hydrangea, tetragonotheca, monarda, ambrofia, old man's head pink, anemifes two or three forts, fchrophulurias, dodartia, echiums, bugloffs of three or four kinds, convolvulus of feveral forts, double and fingle Indian naffurtium, with fome others.

Hardy Trees and Shrubs now in Flower.

Jafmine, monthly rofe, mufk rofe, paffion-flower, arbutus, pomegranate with double flowers, fhrub cinquefoil, mallow tree, althæ frutex, ketmia fyriaca, lauruftinus, honeyfuckle, fcorpion fena, agnus caffus, rhus of feveral forts, celaftrus, medicago frutefcens, fhrubby St. Johnfwort, Itea, clethra, kalmia, azalea, dwarf medlar from Crete, Spanifh broom, Peacock's bladder fena, hamamelis fymphoricarpos, ciftufes, lucca broom, cytiffus hirfutus, tamarifk with fome others.

Medicinal Plants, which may now be gathered for Ufe.

Calamus aromaticus, winter cherry, arum or cuckow-pintle roots, wholfome wolffbane roots, barberry fruit, hemp feed, capficum or Indian pepper, baftard faffron, cucumber feed, bitter vetch feed, fennel feed, fenugreek feed, alifander feed, walnut fruit, lettuce feed, lentil feed, lovage feed, gromwell feed, flax feed, hops, millet feed, fweet fern feed, garden crefs feed, macedonian parfley feed, candy carrot feed, common parfley feed, radifh feed, elderberries, favin, feferi feed, ftixweed feed, muftard feed, nightfhade, goldenrod.

Plants now in Flower in the Green-Houfe and Stove.

Oleanders with double and fingle flowers, coluteæ Æthiopica, amomum Plinii, myrtles, tree candy tuft, fcabious tree, houfeleek tree, feveral forts of ficoides, cotyledons, aloes, Indian fig, double naffurtium, Spanifh jafmine, azorian jafmine, yellow Indian jafmine, arabian jafmine, polyanthufes, Guernfey lily, belladonna lily, leonurus, cytifus incanus, capers, granadillas, fenfitive and humble plants, heliotrepium arborefcens, amber tree, apocynums, lantanas of feveral forts, abutilons, fritilaria craffa, canna indica, bean caper, Indian arrow-root, African alcea, African groundfel tree, indigo, palma chriffi, fpurges, euphorbium, phyfick nut, elichryfums, grewia, papaw, turnera, ftramoniums, dictmas, chironia, anemonofpermofes, folanums, fpartiums, dorias, lotus hæmorrhoidalis, cardinal's flower, caffias, fena alexandrina, fena fpuria, ketmias, piercea, pancratiums, crinum two forts, hæmanthus, plumeria, bauhinia, martynia, milleria, ceftrums, helleborine, rauvolfia, malpighia, convolvulufes, baffella, alkekengi three or four forts, fpigelia, oldenlandia, maurocenia, cliffortia, Lotus with black flowers, African wood forrel, ornithogalum luteum, kleinia, faururus, anthericums, ginger, coftus, kempferia, volkhameria, galingale, d'ayena, ruellias, barleria, fweet-fcented heliotrope from Peru, phylica, commelina, rondelitia, upright torch thiftle, clutia, geraniums of feveral forts, arums, tournefortia, with fome others.

SEPTOIL. *See* TORMENTIL.

SERMOUNTAIN. *See* LASERWORT.

SERPENT's TONGUE. *See* ADDER's TONGUE.

SERVICE TREE, [*Sorbus.*] The right fervice tree is a tall and beautiful tree, and very well worth planting for its timber. There are two or three other kinds which are called by the fame general name, and they agree in the nature of the wood, as well as in the flowers, and the fhape of the fruit; but they vary in the fhape of the leaf, and the degree of goodnefs. Thefe other kinds are diftinguifhed by the names of, 1. The Service Tree, with the fruit red in the middle. 2. The fhort fruited fervice; and, 3. The wild fervice or quick beam.

The firft is the moft valuable, and the

the two next come nearest its nature. The last differs more, and is not generally accounted of the service kind, but called by a distinct name. The flowers of the others are much alike; they appear early in spring, and the fruit is very rough to the taste till thoroughly mellow. All the summer it makes a beautiful appearance.

The best soil for the Service Tree is a tough and firm loam, with some rich earth among it. Such are very common toward the foot of hills, or on any gentle ascent, and these are the best situations also for this tree. When the soil is too light, the tree grows very slowly; and when it is too dry, the fruit ripens very poorly, neither do the leaves stand their time. When the service is judiciously planted, it grows quick, and answers very well to the husbandman; but when the plantation is made at random, none answers worse. Few know its value; because few have given it a fair trial; nor is its timber so much known, or so common to be had, as it ought to be, for this very reason. He who will fall into the method of raising these tres, will do a service to the public, as well as to himself; for there needs but a beginning to incite others, and the consequence would be a ready market for the timber, and it would prevent the importation of a great deal of foreign fine wood; which, however called by sounding names, is inferior to the service tree in beauty, and in value.

The service may be raised from seed, but the better way is by layers, which take root very freely, and are naturally produced in great abundance. Those who have a mind to raise them from seed, must sow them in shallow trenches, in a nursery, and keep them clear from weeds. At two years old they must be planted out at a yard distance, and three or four years after that, be set where they are to stand. Such as want only a few trees, may conveniently enough raise them from suckers, which grow about the old trees in great abundance. These are to be transplanted early in spring.

Which ever way the service tree be raised, it should be carefully trimmed up for the first eight or ten years, that it may not spread into branches till at a certain height, when there will be a handsome trunk for timber. After this it is best left to itself.

It is a very proper tree for avenues, clumps and hedge rows, and 'tis great pity that it is not more frequent. Its beauty should be an inducement to the gentleman, and its quick growth and valuable wood to the husbandman.

The Quick Beam, or, as some call it, the Quicken Tree, or according to others, the Wild Service, or Mountain Ash, for it has all these names, is properly a kind of service tree. It is a beautiful but a small tree, being one of the least of those that are accounted timber trees, or planted for that purpose.

The bark is pale and smooth, the leaves are beautifully formed, each being composed of many smaller, which are long, narrow, and finely dented at the edges. The flowers stand in great bunches at the end of the branches, and are whitish, large and handsome: and after these come beautiful berries red like coral.

This elegant little tree is a native of England, and is a great beauty and ornament to our coppices and hedgerows, in those counties where it is most frequent. Its fair appearance has occasioned its being taken also into gardens, where it makes a fine figure in the wilderness quarters.

The best soil for the quick beam is a light and dry loam; and it grows best on a somewhat rising situation. No tree is better suited to thrive in hedgerows, where the soil is light and dry. It roots itself very firmly; and shoots up in a moderate time to its full stature.

The best way of raising the quick beam is from seed. The berries are to be gathered when full ripe, and sown after they have been spread a fortnight in a dry airy garret. They shoot up very regularly and freely, and should be removed from their first bed to some other part of the nursery at two years growth, and planted at two foot distance. Three or four years after this, they are fit to be transplanted to the places where they are to stand; and a small nursery will thus, with little or no trouble, raise such a quantity as will stock a large piece of ground; where being set in hedges, or the banks of coppice woods, & other such places, they will quickly grow to some value.

Those

Thoſe who would only raiſe a few trees, may take up ſuckers from about the old ones, for they riſe in abundance, and grow freely.

The quick beam ſhould have very little trimming or lopping; for, as it is not to be carried to a large tree, 'tis beſt left to nature, the branches of themſelves growing with a pretty irregularity.

HORN-BEAM, [*Caſpinus.*] This by miſtake in its alphabetical arrangement is referred to SERVICE, and accordingly we have on that account placed it here.

The horn-beam is a beautiful and regularly growing tree. Its bark is brown and tolerably ſmooth, and the wood firm. The leaves are ſhort and indented at the edges, they are ſomewhat like thoſe of the elm, but of a more beautiful green. The flowers are ſmall and inconſiderable. They hang in catkins like thoſe of the hazel; and the fruit, which is dry and light, grows on a different part of the tree.

There are four kinds of this tree raiſed in nurſeries. 1. The common Horn-Beam. 2. The Hop Horn-Beam. 3. The flowering Horn-Beam; and, 4. The Horn-Beam with ſtriped leaves: but the huſbandman who would plant for advantage, has nothing to do with any of theſe except the common kind.

The horn-beam is an extreamly hardy tree, it will grow in the worſt ſoil and bleakeſt ſituation. For this reaſon it is very proper to be planted on the tops of cold hills, and in places ſo expoſed, that others will not grow on them. It will thrive very well in hedges, and in woods; and is excellent for clumps in the bleakeſt and worſt parts of parks, and it every where engages the eye by its beauty.

The beſt way of propagating the horn-beam is by layers. It may alſo be raiſed from ſeeds, but this is a more tedious method, and the other does as well. If the ſeeds are preferred, they muſt be gathered in September, and ſown three weeks or a month after, laying them in the mean time in a dry airy place. They will ſometimes come up in five or ſix months, ſometimes they will lie till the following ſpring. They are to be thinned ſoon after they appear, and kept clear of weeds, and at two years old to be removed to another part of the nurſery, where they muſt be planted at a greater diſtance, and 3 or 4 years after they are to be finally removed, and ſet where they are to remain. But the method by layers is much more expeditious, and the trees grow as beautiful that way as the other.

SETTER. A kind of ſeton or iſſue, made by cutting a hole in the dewlap of an ox or cow, and putting into the wound a ſort of tent formed out of the root of helleboraſter; by which the ill humours vent themſelves.

SETTERWORT. Bearsfoot.

SETWELL. Valerian.

To SEW, *or* GO SEW, to go dry; ſpoken of a cow.

SHADDOCK. *See* ORANGE TREE.

SHAKING. A diſeaſe incident to ſheep, conſiſting of a weakneſs in their hinder quarters, ſo that they cannot riſe up when they are down. No cure is yet known for it.

SHARE *of a Plough.* That part which cuts the ground, the extremity forward being covered with a ſharp-pointed iron, called the point of the ſhare; and the end of the wood behind, the tail of the ſhare. *See the article* PLOUGH.

SHAVE GRASS. Horſe tail.

SHAW. A wood that encompaſſes a cloſe.

SHEAT *of a Plough.* That part of the plough which paſſes through the beam, and is faſtened to the ſhare.

The ſheat, or as it is ſometimes called the fore-ſheat, there being another piece of timber behind it called the hinder-ſheat, ſhould be ſeven inches wide, and faſtened to the beam by a retch (a piece of iron with two legs) and by a wedge driven by it into the hole of the beam. The angle contained between the ſheat and the beam of the plough ſhould be about forty-two degrees.

SHEAVES. Bundles of corn bound up in the field. *See* SHOCK.

SHED. A ſlight temporary covering.

SHEEP. Next in value and conſideration to the larger of the horned cattle comes the ſheep; an article of vaſt concernment to the farmer: cheap in the purchaſe; eaſily fed; and returning

ing a great profit by many feveral ways: even its dung upon the land often paying for all it eats while fed upon it.

We have already adviſed the farmer in the choice of his larger cattle, to proportion their kind to the degree of richneſs in his land: it is not the fortune of every huſbandman to labour upon a fruitful ſoil: but the worſt is not without its uſes; and ſheep are a ſtock for ſuch as will not ſupport the larger kinds. We ſee them thrive upon the moſt barren downs; and the farmer will always find them ready to fatten upon ſuch grounds as will not keep the other kinds alive.

As the oxen of England are of very different breeds, though all the ſame in kind, ſo it is with the ſheep, which differ extreamly according to the ſeveral breeds in different places; and are therefore ſuited one to one kind of land, and another to another.

We ſhall adviſe the huſbandman to great caution, in the ſtocking his farm with ſheep: and this under two heads, firſt, with reſpect to the breed, and ſecondly, for his choice of the creatures themſelves; for there are, in every breed, many that are much finer than others, and theſe he ſhould chuſe. Half the profit that might be made by this part of the huſbandman's ſtock, is loſt by careleſſneſs in the firſt choice, and in the following management: but an error in the firſt choice is the moſt fatal, becauſe it is irrecoverable, except by beginning over again. We ſhall therefore firſt conſider that, and laying before the practical huſbandman the properties and particular uſes of the ſeveral different breed of ſheep that we have in England, ſhall adviſe him in his choice according to his main deſign, his beſt advantage, and the nature of the land he has to ſtock with them.

With reſpect to the fineneſs of the wool, there is a ſmall breed, diſtinguiſhed by their black face and thin coat, that exceed all others. They bear but a ſmall quantity in compariſon of many, but the quality of it makes amends. Theſe are eaſily known by ſight. They were firſt raiſed in Herefordſhire and Worceſterſhire. And for that reaſon are known in many places by the name of the Herefordſhire or the Worceſterſhire breed. A dry, barren, and expoſed paſturage will very well feed this kind, for they are hardy; and the ſhorter the graſs on which they feed, it is obſerved the finer the wool. They are alſo excellent for the table, the joints being ſmall and full of a fine gravy. We ſee this kind kept in many parts of England, in gentlemen's parks and lawns, and they every where make a pretty appearance.

The kind moſt oppoſite to theſe are a large, tall, and heavy-loaded ſheep: theſe have ſtrong limbs, and a ſtout gait in walking: they carry a great deal of wool, but it is coarſe. Theſe were firſt bred in Lincolnſhire, and in ſome of the adjoining counties; and are fond of living in ſalt marſhes. They have been taken into many parts of the kingdom, to other ground, where they do not keep entirely to their own nature: and yet are called, from the place whence they were brought, the Lincolnſhire breed.

The fleſh of theſe is large grained, but moderately taſted, and no where very much eſteemed. However, as they are obſerved to ſucceed better than the other breeds, in places toward the ſea, it may be proper for the huſbandman who has land in ſuch a ſituation, to take ſome of them: though not for his whole ſtock in this kind.

Thirdly, there is a breed between theſe two kinds, which in general ſhould be preferred to either. This is a large, tall, and ſtrong ſheep, of the beſt ſhape of any, & having the deepeſt coat of wool. This was originally fed in ſeveral of our midland counties, and has thence been called by ſome the Midland Breed; and by others, from ſome particular counties famous for them, the Leiceſterſhire or Northamptonſhire breed. The wool of this kind, though not altogether ſo good as that of the ſmall black-faced ſheep, is greatly preferable to that of the Lincolnſhire breed; and the quantity is ſo much greater than that of the ſmaller kind, that it very well makes amends for its inferior quality.

The fleſh of this ſheep is the common mutton, not in any thing particular for goodneſs or badneſs: and it will do

do very well upon the common paſture grounds, and thrive upon every common kind of food. For theſe reaſons it is fit that theſe ſheep ſhould be moſt generally bred.

When the huſbandman has very poor paſture grounds, let him take the Herefordſhire breed; and when he borders upon the ſea-coaſt, or upon the ſhores of large ſalt-water rivers, let him prefer, in part at leaſt, the Lincolnſhire kind; but when he has none of theſe particular reaſons to byaſs him, let him prefer this midland breed to any other.

To theſe three, which may be called the general breeds of ſheep, we ſhall add a few words on two other kinds.

The ſheep bred in the northern parts of this kingdom, are a large and big-boned ſort; they approach to the Lincolnſhire kind in ſhape; but their wool is harſh, rough, and hairy; theſe are called by ſome the Yorkſhire breed.

Their fleſh is inferior to that of ſeveral other kinds, as well as their wool; but they have an advantage over the others, in that they will ſtand the coldeſt weather, and take care of themſelves where ſome of the tenderer breeds would be loſt. This may recommend them to the huſbandman whoſe lot has thrown him far north, where the other kinds will not thrive; but he ſhould not introduce them into his farm in any other ſituation, for they are leſs profitable than any others.

The laſt kind, or breed, to be mentioned, is in a manner peculiar to mountainous countries; and is moſt frequent in Wales. It may therefore be called the Welch breed. This is a ſmall, but well-ſhaped ſheep; and ſo hardy that it will live any where. The fleſh is excellent for the table. But the wool is not only ſmall in quantity, but is the worſt produced by any breed of ſheep in this country.

The huſbandman will ſee by this account, that it never can be his intereſt to admit this breed among his ſtock, unleſs compelled to it by the particularity of his ſituation. The little black-faced ſheep of Herefordſhire has the ſame advantage in the excellence of its fleſh; and it has, into the bargain, the fineſt wool. Therefore it is highly to be preferred, where it will thrive: and it will do on very poor and very expoſed ground. However, if at any time the farmer finds his paſtures ſo poor, ſo expoſed, and miſerable, that they will not ſupport this kind, all he has to do is to call in the other, or Welch breed, which will live any where.

Having laid before the huſbandman this account of the three principal different breeds of ſheep in England, and the two other kinds that are in a manner particular to certain places, the next part of our care muſt be, the inſtructing him in his choice, not only of the breed he ſhall fix upon, for the grounds of that choice have been laid down already, in their ſeveral characters; but of the particular creatures he ſhall fix upon in the breed that is moſt ſuited to his purpoſe.

But to this particular let us premiſe a few words upon his general choice, that is, as to the breed. He ſees here five ſeveral kinds of ſheep, ſome large, others ſmaller; and ſome yielding a greater, ſome a ſmaller quantity of wool, which is alſo on one breed fine, and on another coarſer. He has his choice given him among all theſe, for we ſuppoſe him not yet to have begun ſtocking his farm with this article: it would be natural for him to prefer at once the fineſt kind as moſt profitable; but let him not only remember, but ſtrictly obſerve what we have juſt laid down, that every breed will not ſuit every paſture.

He has now ſeen what are the kinds of ſheep; let him examine what is the nature of his land; and when he has impartially conſidered this, let him fix upon that breed which will thrive beſt on that kind of paſturage he has at his command, for this we have expreſsly told him with reſpect to each; and let him then purchaſe for his farm that breed which he ſees will be moſt ſuited to thrive on it.

This he may be aſſured of, and he may extend the rule farther than barely to his ſheep, that he will have more profit from the very worſt kind that ſhall thrive upon his land, than he poſſibly can from the very beſt that ſhall ſtarve upon it.

One thing farther is to be noted before we come to the particular choice, that is, the difference of the land which he is to bring them to from that whence he purchaſed them: this muſt be in

tures, and finds that his lambs want milk, it is beſt to ſell them at once to the butcher: for it is not the running by the ewe that will preſerve them, ſhe can be of no ſervice againſt ſuch an accident, if ſhe wants milk for their full ſupport.

Thoſe he lambs that are intended to be bred as rams, ſhould be ſeparated from the reſt, and the others gelt in time. The ſooner this is done the better: for every creature bears this operation beſt while it is tender, and is with the dam. If this operation have been neglected at a proper time, it muſt be done toward the end of September, at which ſeaſon it is beſt to ſeparate the breed or this purpoſe, and ſee it be done ſperfectly.

SHEEP'S FESCUE *Graſs*, [*Feſtuca ovina.*] This graſs is much eſteemed for feeding of ſheep in Sweden, where they have not ſuch downs as we have.

Gmelin ſays, that the Tartars chooſe to fix, during the ſummer, in thoſe places where there is the greateſt plenty of this graſs, becauſe it affords a moſt wholſome nouriſhment to all kinds of cattle, but chiefly ſheep: and he obſerves, that the ſepulchral monuments of the ancient Tartars are moſtly found in places which abound with this graſs, which ſhews, adds he, that it has long been valued among them.

This graſs abounds in many parts of England and Wales, and particularly on all the fineſt ſheep paſtures in Herefordſhire, Oxfordſhire, Norfolk, &c. Mr. Stillingfleet obſerves, that it is a very early graſs, and that, contrary to what Linnæus ſays, either ſheep, or ſome other animals do eat the flowering ſtems of this graſs; for, when he ſearched for it upon Benſtead downs, he could ſee no part of it but the radical leaves, except among buſhes near the hedges, where it was guarded from the ſheep.

SHEARING *of Sheep*. There are two articles in the condition of the wool which enhance its price. Theſe are, fattyneſs and cleanneſs. And it is in the owner's power to give it theſe in a much greater degree than they otherwiſe would be, by his care and attention. The firſt will be increaſed by the time of ſhearing, the other by cleanlineſs.

The fattyneſs of the wool will never give it any value, unleſs it be at the ſame time clean; and the cleanneſs will diſcover its imperfection, inſtead of enhancing the price, if it be not fatty.

This fattyneſs of the wool is owing to the creature's ſweating, and therefore there muſt be ſome hot weather paſt before it is ſheared, that it may have ſweated well: not once or twice, for that will anſwer no purpoſe: but ſeveral times for days together, that the moiſture may have lodged itſelf about the wool, and in a manner oiled it ſo, that the neceſſary waſhing of the creature for cleanlyneſs, ſhall not be able to carry it off.

Unleſs the ſheep have ſweated well before the waſhing, that will do harm equal to its good, for as much as it increaſes the price by cleanneſs, it diminiſhes it by taking off the fatneſs. It is very neceſſary ſheep ſhould be well waſhed before they are ſheared: but the farmer is to know at the ſame time, that unleſs they have well ſweat in their wool firſt, this will hurt it.

Upon this foundation depends all the art of ſheep-ſhearing. The beſt ſeaſon of the year for doing it is toward midſummer. But let the weather determine, and let not the farmer be carried away by the name of any day, or month, againſt the uſe of his reaſon.

SHEPHERD'S *Needle*. See *Sweet* FERN.

SHEPHERD'S POUCH. } [*Burſa Paſtoris.*]
SHEPHERD'S PURSE. }

This plant is common in waſte places; and is found in flower all the ſummer. Shepherd's purſe has long been celebrated as an aſtringent, and ſtrongly recommended in diarrhœas, dyſenteries, uterine fluors, and in general in all diſeaſes where aſtringents of any kind can avail; but preſent practice pays little or no regard to it.

SHEPHERD'S STUFF. Teazel.

SHOODS. Oat hulls.

SHOULDER-WRENCH. To underſtand the nature of theſe infirmities, it will be neceſſary to remember, that the blade-bone of the ſhoulder is fixed to the body, not by articulation or jointing, but by appoſition, being laid to the ribs, and faſtened by the muſcles which lie under and above it; ſo when a horſe happens to receive a blow or ſtrain in the ſhoulder, the tendons of theſe muſcles are ſtretched and relaxed; and when

ſplait,

that is violent, it is called a *ſhoulder-ſplait*, and becomes more or leſs dangerous, as the horſe is more or leſs hardy.

Every one ſufficiently knows, that a ſlip, falſe ſtep, or any undue poſition of a horſe's leg, will ſtrain and weaken the ſhoulder, by ſtretching thoſe ligaments; and ſometimes the ſhoulder is affected by a hurt or bruiſe on the withers, the reaſon of which may be eaſily enough conceived, by any one who will examine into the ſtructure of theſe parts; but when the accident proves not ſo violent as to ſhew a looſeneſs and ſwelling, it is not eaſily diſcerned whether the lameneſs be in the ſhoulder, in the foot, or any other joint. The beſt judges have therefore, in all ſuch caſes, thought it proper to examine all parts from the ſhoulder downwards, and even to unſhoe the horſe, that they may know certainly where to apply their remedies. But the infirmities of the ſhoulders may be diſtinguiſhed from thoſe of the feet, by having a horſe put to exerciſe; for if the lameneſs be in the feet, he will halt moſt when he is ridden; but if it be in the ſhoulder, the warmer he grows, the leſs he will halt; and, if the wrench be violent, he will be apt to caſt his leg outwards, forming a circle as he goes. But if none of theſe ſigns are perceivable in his gait, the ſureſt way is to turn him ſhort on the lame ſide, for that tries the muſcles the moſt of any thing; ſo that if the grief be in the ſhoulder, he will ſet his foot on the ground hardily, and endeavour to favour his ſhoulder.

But in order to the cure, a diſtinction ought to be made between an old grief, and a hurt that is newly received; for, in a freſh ſtrain, the firſt intention is to apply ſuch things as are proper to allay the heat and inflammation, and prevent a too great afflux of matter to the part; whereas in an old grief, thoſe things are chiefly made uſe of that attenuate and render the ſuperfluous humours fit to paſs thro' the pores; and therefore, as ſoon as you perceive your horſe lamed in the ſhoulder, by a fall, or any other accident, after he has been bled on the oppoſite ſide, a cold reſtringent charge may be applied of vinegar, bole, and the whites of eggs. Verjuice may be uſed inſtead of vinegar upon the road, which may be had at any farm-houſe; for the ſooner a cold application is made, the better. The part ought, in the beginning, to be refreſhed 3 or 4 times a day, with a ſponge dipt in vinegar and bole; and after that the following plaiſter may be applied:

'Take common pitch half a pound, *de Minio* plaiſter or diachylon ſix ounces, common turpentine four ounces: melt them altogether in a pipkin over hot embers, continually ſtirring; and when theſe are diſſolved, add bole in fine powder four ounces, myrrh and aloes, of each an ounce. Spread this upon the horſe's ſhoulder, before it grows cold, and put fine flocks of the colour of the horſe all over it.'

But when the lameneſs happens to be of an old ſtanding, the following ointment will be of great ſervice.

'Take of the ſoldiers ointment, or nerve ointment, half a pound, ointment of marſhmallows ſix ounces, rectifyed oil of amber four ounces. Mix them all together, & with a hot bar of iron held as near as poſſible, chafe the part twice a day; and, at ſome intervals, with camphorated ſpirits.'

The ſoldiers ointment is made as follows:

'Take freſh bay-leaves three pounds, rue two pounds and a half, marjoram two pounds, mint one pound, ſage, wormwood, coſtmary, baſil, of each half a pound, oil olive twenty pounds, yellow wax four pounds, Malaga wine two pounds.'

Bruiſe all the leaves, and boil to the conſiſtence of an ointment, and keep it for uſe. This may be made in a ſmaller quantity by thoſe who keep but few horſes.

Solleyſell recommends the ointment of *Montpellier* as an excellent remedy in all ſtrains in the ſhoulders, &c. It is compoſed of the ointment of roſes, marſhmallows, populeon and honey, of each equal quantities. The oils of turpentine, earth-worms, oil of *Petre*, St. *John's* wort, nerve oil, bear's greaſe, horſe greaſe, mules greaſe, deers ſuet, badgers greaſe, and many ſuch things, are alſo uſed in the ſame intention.

But

But if the lameneſs does not yield to theſe things, recourſe may be had to roweſing, or to the fire; but the laſt is preferable, and leſs painful than the uſual method of roweling, by bruiſing and blowing up the ſhoulder.

And, therefore, with a hot iron, make a circle the breadth of a trencher round the joint, and within the whole circle pierce the ſkin, leaving about an inch between the holes, and to each apply yellow wax and roſin melted together, until the eſcars fall off, and then dreſs them every day with turpentine and honey, applying plaiſters as directed, until the ſores are dried up.

Some adviſe ſwimming a horſe for a ſhoulder-ſplait, from an opinion of the joint being out; but if it were really ſo, he muſt ſwim with three legs, which is almoſt as impoſſible as for a door to move without hinges. But yet ſwimming is not always unſucceſsful; and, in all old griefs, it becomes ſerviceable in the ſame manner as a cold bath, by helping perſpiration, and giving a more lively motion to the obſtructed matter; and therefore the morning is the propereſt time, becauſe the water is then the coldeſt, and it ſhould be a continued cuſtom for ſome time to do effectual ſervice.

But, in all other reſpects, the horſe ſhould be put to no kind of labour, neither ought any one to ride him, for a weight upon his back muſt needs add to the infirmity, as the greateſt ſtreſs lies upon the ſhoulders; but it will be very proper for him to be walked out every day, when the weather is favourable; and his exerciſe may be increaſed as his ſhoulder recovers ſtrength; a patten ſhoe may alſo be ſet upon the oppoſite foot, if he leans too much upon it.

SHOVEL. A well-known inſtrument, conſiſting of a long handle, and a broad blade, with raiſed edges.

SHOWEL. A blind for a cow's eyes.

SHROUD. A ſhelter, or harbour.

SHUCK. A huſk or ſhell.

SICKLE. A toothed hook, with which corn is reaped.

SIDE-SADDLE. A ſaddle for women to ride on horeback.

SIDE-SADDLE *Flower*, [*Sarracena.*] There are two ſpecies; one growing in the bogs of moſt parts of North-America, which has a ſtrong fibrous root, which ſtrikes deep into the ſoft earth, from which ariſe five, ſix, or ſeven leaves, in proportion to the ſtrength of the plant; theſe are hollow like a pitcher, narrow at their baſe, but ſwell out large at the top; their outer ſides are rounded, but on their inner they are a little compreſſed, and have a broad leafy border running longitudinally the whole length of the tube; and to the rounded part of the leaf there is on the top a large appendage or ear ſtanding erect, of a brownish colour; this ſurrounds the outſide of the leaves, about two-thirds of the top. From the center of the root, between the leaves, ariſes a ſtrong, round, naked foot-ſtalk about a foot high, ſuſtaining one nodding flower at the top, which has a double empalement; the outer one is of one leaf, divided into five parts to the bottom, where they are connected to the foot-ſtalks; theſe ſegments are obtuſe, and bend over the flower, ſo as to cover the inſide of it; they are of a purple colour on the outſide, but green within, having purple edges; the inner empalement, which is compoſed of three green leaves, falls off; within theſe are five oval petals of a purple colour, which are hollowed like a ſpoon; theſe cover the ſtamina and ſummits, with part of the ſtigma alſo. In the center is ſituated a large, roundiſh, channelled germen, ſupporting a ſhort ſtyle, crowned by a very broad five-cornered ſtigma, faſtened in the middle to the ſtyle, covering the ſtamina like a target; this is green, but the five corners, which are ſtretched out beyond the brim, are each cut into two points, and are purpliſh. Round the germen are ſituated a great number of ſhort ſtamina, joining the ſides of the germen cloſely, which are terminated by target-ſhaped furrowed ſummits, of a pale ſulphur colour. When the flower decays, the germen ſwells to a large roundiſh capſule with five cells, covered by the permanent ſtigma, filled with ſmall ſeeds.

The ſecond ſort grows naturally in Carolina, upon bogs and in ſtanding ſhallow waters. The leaves of this ſort grow near three feet high, ſmall at the bottom, but widening gradually to the top. They are hollow, and arched

arched over at the mouth like a friar's cowl. The flowers of this grow on naked pedicles, rifing from the root to the height of three feet; the flowers are green.

Thefe plants are eſteemed for the ſingular ſtructure of their leaves and flowers, which are ſo different from all the known plants, as to have little reſemblance of any yet diſcovered; but there is ſome difficulty in getting them to thrive in England, when they are obtained from abroad; for as they grow naturally on bogs, or in ſhallow ſtanding waters, ſo unleſs they are conſtantly kept in wet they will not thrive; and although the winters are very ſharp in the countries where the firſt ſort naturally grows, yet being covered with water, and the remains of decayed plants, they are defended from froſt.

SIEVE. Hair, lawn, or baſket-work, ſtrained on a hoop, for ſeparating the flour from the bran, the duſt from corn, &c. *See* Frail.

SIG. Urine, chamber-lie.

SIKE. A little rill, a water furrow, a gutter.

SILK GRASS. Dogſbane.

SILVER BUSH. Jupiter's beard.

SILVER TREE, [*Protea.*] This is a native of the Cape of Good Hope, of which there are no leſs than twenty ſpecies, but all require the aſſiſtance of a ſtove or green-houſe.

SILVER WEED, [*Potentila.*] Cinquefoil.

SIMAROUBA. A bark with pieces of the wood adhering to it, brought from Guiana, in long tough pieces, of a pale yellowiſh colour, and a pretty ſtrong bitter taſte. It has lately come into eſteem in dyſenteric fluxes: a decoction of half a dram is given for a doſe, and repeated at intervals of three or four hours.

SIT-FAST. A part of a horſe's hide turned horny, and which if it cannot be diſſolved, and ſoftened by rubbing with mercurial ointment, muſt be cut out, and afterwards healed as a freſh wound. It generally proceeds from a warble. *Hide-Bound.*

SIZZING. Yeaſt, or barm.

SKID. The chain by which the wheel of a waggon is faſtened, ſo as to prevent its turning round, upon deſcending a ſteep hill.

SKILLING. An iſle, or bay of a barn.

SKIRRETS. A kind of parſnep, which thrive beſt in a light and moiſt ſoil. They are propagated either by ſeeds, or by ſlips from the root, which is compoſed of ſeveral fleſhy fibres, about the thickneſs of a man's little finger, terminating in one head. This root, for which only the ſkirret is cultivated, is reckoned wholſome and nouriſhing: but it is flatulent, and too ſweet taſted for many palates. The ſeeds of this plant, which generally produce larger roots than the ſlips, ſhould be ſown about the end of March or the beginning of April, and if they are good, the plants will appear in five or ſix weeks. When they have put out their leaves ſo as to be well diſtinguiſhed from weeds, the ground ſhould be carefully hoed; and this ſhould be repeated three ſeveral times, in the ſame manner as is practiſed for carrots. In theſe hoeings, which ſhould be performed in as dry weather as poſſible, the better to deſtroy the weeds, the ſkirrets, whether ſown in broad-caſt, or in drills, ſhould be thinned the diſtance of at leaſt three inches from each other. In autumn, when the leaves begin to decay, the roots will be fit for uſe. Theſe may be preſerved all the winter, and till they begin to ſhoot in the ſpring, when they will become hard and ſticky. So will alſo thoſe which run up to ſeed the firſt ſummer, and which ſhould therefore be pulled up and thrown away.

The ſeaſon for propagating ſkirrets by offſets is in the ſpring, before they begin to ſhoot. The old roots ſhould be dug up then, and the ſide roots ſhould be ſlipt off with an eye or bud to each. Theſe ſhould be planted four inches aſunder, in rows ſufficiently diſtant to leave room for digging between them.

SLAB. The out-ſide plank of a piece of timber when ſawn into boards.

SLECKS. Small pit-coal.

Ladies SLIPPER, [*Cypripedium.*] This plant muſt be taken in the place where it grows, and tranſplanted into the gardens.

SLOE TREE. *See* PLUM TREE *and* BLACKTHORN.

SMALLAGE, [*Apium graveolens.*] A plant growing naturally by the ſides of brooks and ditches in many parts of England

England, and is rarely cultivated in gardens. Thofe however, who are fond of it in their pottage, may raife it in a moift foil, either by flips, or from feeds fown in March. This feed is reddifh, and pretty big, of a roundifh oval fhape, a little more full and rifing on one fide than on the other, and ftreaked lengthwife.

SMUT. A difeafe in corn, which partially or totally deftroys the grain in the ear. When it is in the full height of its mifchief, the whole inner fubftance of the corn is black as ink, of a faint, naufeous tafte, a bad fmell, and of offenfive qualities, occafioning ficknefs in thofe who eat bread made of flour in which there was much of it. In this cafe, if the corn be bruifed, and fteeped in water, it prefently fhews innumerable worms, like little eels, living in every part of it.

When the diforder is not arrived to this full height, the inner fubftance of the corn is not then entirely hurt, but the outfide is fpotted with black; and, in fome corns, a part of the flour within. This makes a great change in the matter; for the firft is wholly deftroyed, whereas the other may fometimes be recovered for certain ufes, though not for all fervices.

England is more fubject to this diforder of corn than any other country we know; and this is owing to our wet fummers: in the warm and naturally dry countries it is not known at all, or not in a degree worth notice.

In Egypt no age ever faw a black grain of any corn; for in Egypt they have no rain: and even in Italy it is little regarded now; and was fo flighted in earlier time, that all the Roman writers have not a name for it. There is not a word of fmut in the Latin language. The reader muft not cenfure this aflertion, if fome modern writers, in that language, have attempted to name it: they ufe words which properly expreſs blight and mildew: to both thefe the old Roman fields were fubject, therefore they have terms to expreſs them; but this was little known, and lefs regarded.

For the beſt known prevention of this difeafe, we recommend good tillage, with a due courfe of crops and fallows; and particularly change of feed. In fallows we include turnips, &c.

See alſo Barren Corn.
—— Worms.
—— Blight.
—— Burnt Grain.
—— Abortive Corn.

SNAIL TREFOIL. *See* BASTARD MEDIC.

SNAKE WEED. Butort.

SNAKE ROOT. Birthwort.

Virginian SNAKE ROOT, Is a fmall, light, bufhy root, conſiſting of a number of ſtrings or fibres, matted together, iſſuing from one common head; of a browniſh colour on the outſide, and paler or yellowiſh within. It has an aromatic ſmell, like that of valerian, but more agreeable; and a warm, bitteriſh, pungent taſte. This root is a warm diaphoretic and diuretic: it has been greatly celebrated as an alexipharmac, and eſteemed one of the principal remedies in malignant fevers and epidemic diſeaſes. In theſe intentions, it is given in ſubſtance from ten to thirty grains, and in infuſion to a dram or two.

SNAIL-COD. A name given by Mr. Worlidge to a ſpecies of manure found at the bottom of deep rivers. It is a kind of mud or fledge, very ſoft, full of wrinkles, and intermixed with many little ſhells and ſnails, to which it is thought to owe a great part of its fatneſs.

SNAPDRAGON. *See* CALVES SNOUT.

American SNAPDRAGON, [*Ruellia.*] This plant grows naturally in the Weſt-India Iſlands and Carolina, it is propagated by ſeeds, but requires the aſſiſtance of a bark ſtove.

SNAP-TREE, [*Juſticia.*] This plant is a native of India, riſing with a ſhrubby ſtalk to the height of three or four feet, & is propagated by cuttings.

SNATHE. The handle of a ſcythe.

SNEEZEWORT, [*Ptarmica.*] This grows wild upon heaths and in moiſt ſhady places; the flowers, which are of a white colour, come forth in June and July. The roots have an acrid ſmell, and a hot biting taſte: chewed, they occaſion a plentiful diſcharge of ſaliva; and when powdered and ſnuffed up the noſe, provoke ſneezing. Theſe are the only intentions to which they have been uſually applied.

SNOWDROP, [*Galanthus.*] This flower is valued for its early appearance in the ſpring, for it uſually blows in February when the ground is often covered with ſnow. The ſingle ſort comes out the firſt, and though the flowers are but ſmall, yet when the roots

roots are in bunches they make a very pretty appearance; therefore these roots should not be planted single, as is sometimes practised by way of edging to borders; for when they are so disposed, they make very little appearance. But when there are twenty or more roots growing in a close bunch, the flowers have a very good effect; and as these flowers thrive well under trees or hedges, they are very proper to plant on the sides of wood-walks, and in wilderness quarters, where, if they are suffered to remain undisturbed, the roots will multiply exceedingly. The roots may be taken up the latter end of June, when their leaves decay, and may be kept out of the ground till the end of August; but they must not be removed oftner than every third or fourth year: these plants are got scarce in the gardens near London.

SNOWDROP-TREE. *See* FRINGE-TREE.

SOAP ASHES. *See* ASHES.

SOLDANEL, [*Soldanella.*] This plant is a native of the Alps, and the mountains of Germany, and may be propagated by parting the roots.

WATERSOLDIER, [*Stratiotes.*] Water Aloes, or Freshwater Soldier. This plant is like the aloes in shape, but the leaves are thinner and serrated on the edges very sharply. It grows naturally in standing waters of the Isle of Ely, and other parts of England.

SOLOMON's SEAL, [*Polygonatum.*] This grows wild in woods, but is not very common: the root has several joints, with some flat circular depressions, supposed to resemble the stamp of a seal. It has a sweetish mucilaginous taste. As to its virtues, practitioners do not now expect any considerable ones from it, and pay very little regard to the vulnerary qualities which it was formerly celebrated for.

SOOT. Soot is of two general kinds, the one, that which arises from wood, the other that of coal. These differ very much in many respects, but they are nearly the same in their effects and value to the farmer. The wood soot is solid and shining, the coal soot looser, and of a deader colour. The wood soot sells in London at a great price, in comparison of the other, for the use of chymists and apothecaries, because it is scarcer, the fuel of London being, in general, coal: but in the country, where this is as common and cheap as the other, the farmers rather prefer coal soot.

Those who have written on husbandry, differ much in the kind to which they give the preference. Mortimer says sea-coal soot is by much the best, and Worlidge tells us, that soot is a good manure, especially such as is made of wood: these are both very honest and good writers; but experience is to be preferred to either. The truth is, that neither kind deserves a general preference, but that wood is better for some soils, and coal soot for others. Indeed the latter is best on the greatest number of soils, and therefore the farmer is right in valuing it the more. However, this difference is not so great, that any danger can arise from a mistake about it, for such land as will do well with one kind of soot, will also with another: all that the best choice can do gives only a little advantage.

As to the suiting the particular kinds of soot to the different soils, the rule is this. For all clayey, chalky, and mossy lands, the coal soot is best. And this is the reason why the coal soot is most in repute in London for this traffick, because the Hertfordshire farmers, who buy it almost entirely, have, for the most part, clayey or chalky soils to cultivate.

For gravelly, sandy, and loamy soils, the wood soot is preferable to that of coal: and in its nature indeed this kind is better and richer than the other, because, being made from a vegetable substance, it is richer and warmer than that other which comes from a mineral origin; but the great reason of the difference which suits one kind to one soil, and another to another, is the consistence. The wood soot is in firmer and harder lumps; the coal soot is crumbly; now in a clayey or a mossy soil, the lumps of the wood soot would lie a long time unbroken, whereas the coal soot breaks and mixes immediately. Experience shews also, that the wood soot will lie in large pieces a long time in a chalky land; whereas the gravelly sands, and sandy loams, cut and break it to pieces in two or three ploughings, and spread and mix it thoroughly.

SOPEBERRY-TREE, [*Sapindus.*] This plant grows naturally in the Weſt-Indies, and riſes with a woody ſtalk, to the height of 20 to 30 feet, bearing flowers in looſe ſpikes at the end of its branches, ſucceeded by oval berries as large as middling cherries; the covering of theſe berries is ſometimes uſed for ſoap to waſh, when it is propagated by ſeeds.

SOPEWORT, [*Saponaria.*] This grows wild, though not very common, in low wet places, and by the ſides of running waters; a double-flowered ſort is frequent in our gardens. The leaves have a bitter, not agreeable taſte; agitated with water, they raiſe a ſaponaceous froth, which is ſaid to have nearly the ſame effects with ſolutions of ſoap itſelf in taking out ſpots from cloths, and the like. The roots taſte ſweetiſh and ſomewhat pungent; and have a light ſmell like thoſe of liquorice: digeſted in rectified ſpirit they yield a ſtrong tincture, which loſes nothing of its taſte or flavour in being inſpiſſated to the conſiſtence of an extract. This elegant root has not come much into practice among us, though it promiſes, from its ſenſible qualities, to be a medicine of conſiderable utility: it is greatly eſteemed by the German phyſicians as an aperient, corroborant, and ſudorific: and preferred by the college of Wirtemberg, Stahl, Neumann, and others, to ſarſaparilla.

SORREL, [*Acetoſa.*] Sorrel grows wild in fields and meadows throughout England. The leaves have a reſtringent acid taſte, without any ſmell or particular flavour: their medical effects are, to cool, quench thirſt, and promote the urinary diſcharge: a decoction of them in whey affords an uſeful and agreeable drink in febrile or inflammatory diſorders: and is recommended by Boerhave to be uſed in the ſpring as one of the moſt efficacious aperients and detergents. Some kinds of ſcurvies have yielded to the continued uſe of this medicine: the Greenlanders, who are very ſubject to this diſtemper, are ſaid to employ, with good ſucceſs, a mixture of the juices of ſorrel and of ſcurvygraſs. The only officinal preparation of this plant is an eſſential ſalt from the juice of the leaves.

WOOD SORREL, [*Lujula.*] This is a ſmall plant, growing wild in woods. In taſte and medical qualities, it is ſimilar to the common ſorrel, but conſiderably more grateful, and hence is preferred by the London college. Boiled with milk, it forms an agreeable whey; and beaten with ſugar, a very elegant conſerve, which has been for ſome time kept in the ſhops, and is now received in the diſpenſatory.

SOURSOP. See *Cuſtard* APPLE.

SOIL. A general name for all ſorts of land. *See Meadow-paſture &c.*

SOURLAND. A cold, hungry, clayey ſoil.

SOUTHERNWOOD, [*Abrotanum Mas.*] This is a ſhrubby plant, clothed with very finely divided leaves, of a greyiſh green colour: the flowers, which are very ſmall and yellowiſh, hang downwards, ſeveral together, from the middle of the branches to the top. It is a native of the warmer countries; in this it is cultivated in gardens: the leaves fall off every winter: the roots and ſtalks abide many years.

Southernwood has a ſtrong, not very diſagreeable ſmell; and a naſeous, pungent, bitter taſte; which is totally extracted by rectified ſpirit, leſs perfectly by watery liquors. It is recommended as an anthelmintic; and in cold leucophlegmatic habits, as a ſtimulant, detergent, aperient, and ſudorific. The preſent practice has almoſt entirely confined its uſe to external applications. The leaves are frequently employed in diſcutient and antiſeptic fomentations; and have been recommended alſo in lotions and unguents for cutaneous eruptions, and the falling off of the hair.

SOW. The female of the ſwine.

SOWING. The act of diſtributing ſeed on the ground to produce a crop.

SOWBREAD, [*Cyclamen.*] This plant is met with in the gardens of the curious. The root has, when freſh, an extremely acrimonious burning taſte, which it almoſt entirely loſes on being dried. It is recommended as an emmine; in cataplaſms for ſchirrous and ſcrophulous tumours; and internally as a cathartic, detergent, and aperient; it operates very ſlowly, but with great virulence, inflaming the fauces and inteſtines; and hence is deſervedly rejected from the London diſpenſa-

diſpenſatory, though retained in that of Edinburgh.

SOWTHISTLE, [*Sonchus.*] This is a troubleſome weed both in gardens and fields, and ſhould be taken care of, that the ſeeds be not ſuffered to ripen, and be ſcattered by the wind.

SPANISH NUT. See FILBERT.

SPANISH ROSEMARY, [*Paperina.*] Sparrow-wort. This plant grows naturally at the Cape of Good Hope, riſing with a ſhrubby ſtalk five or ſix feet high, and may be propagated by cuttings; ſheltering the plants in the greenhouſe during winter.

SPANISH BROOM, [*Spartium.*] This plant has long held a place in the Engliſh gardens, and is eaſily propagated by ſeeds. There are ſeveral ſpecies kept for variety.

SPANISH ELDER. See *Spaniſh* ELDER.

SPANISH PICKTOOTH, [*Viſnaga.*] A ſpecies of carrot, growing naturally in Spain and Italy; the footſtalks of the flowers are uſed as tooth-picks.

SPANISH MARJORAM, [*Uſtica Dodartia.*] This is a ſpecies of nettle, growing naturally in Spain, and is eaſily propagated by ſeeds.

SPADE. A well-known inſtrument uſed in digging.

SPANCEL. A rope to tye a cow's hinder legs.

SPATLING-POPPY. See CHICKWEED.

SPARSED-LEAVES. Are thoſe which are placed irregularly about the ſeveral parts of a plant.

SPAVIN. A diſeaſe in horſes, being a ſwelling in or near ſome of the joints, that cauſes a lameneſs.

There are two kinds of ſpavin, called a blood-ſpavin, and a bog-ſpavin.

A blood-ſpavin is a ſwelling and dilatation of the vein that runs along the inſide of the hock, forming a little ſoft ſwelling in the hollow part, and is often attended with a weakneſs and lameneſs of the hock.

The cure ſhould be firſt attempted with reſtringents and bandage, which will contribute greatly to ſtrengthen all weakneſſes of the joints, and frequently will remove this diſorder, if early applied: but if by theſe means the vein is not reduced to its uſual dimenſions, the ſkin ſhould be opened, and the vein tied with a crooked needle and wax thread paſſed underneath it, both above and below the ſwelling, and the turgid part ſuffered to digeſt away with the ligatures: for this purpoſe, the wound may be dreſſed with turpentine, honey, and ſpirit of wine, incorporated together.

A bog-ſpavin is an encyſted tumour on the inſide the hough, or, according to Dr. Bracken, a collection of brownish gelatinous matter, contained in a bag, or cyſt, which he thinks to be the lubricating matter of the joint altered, the common membrane that incloſes it forming the cyſt: this caſe he has taken the pains to illuſtrate in a young colt of his own, where he ſays, when the ſpavin was preſſed hard on the inſide of the hough, there was a ſmall tumour on the outſide, which convinced him the fluid was within-ſide the joint: he accordingly cut into it, diſcharged a large quantity of this gelatinous matter, dreſſed the ſore with doſſils dipped in oil of turpentine, putting into it, once in three or four days, a powder made of calcined vitriol, allum and bole: by this method of dreſſing, the bag ſloughed off, and came away, and the cure was ſucceſsfully compleated without any viſible ſcar.

This diſorder, according to the above deſcription, will ſcarcely ſubmit to any other method, except firing, when the cyſt ought to be penetrated to make it effectual; but in all obſtinate caſes that have reſiſted the above methods, both the cure of this, and the ſwellings called wind-galls, ſhould, we think, be attempted in this manner. If, through the pain attending the operation or dreſſings, the joint ſhould ſwell and inflame, foment it twice a day, and apply a poultice over the dreſſings till it is reduced.

SPAYING. The operation of caſtrating the females of ſeveral kinds of animals, as ſows, bitches, &c. to prevent any farther conception, and promote their fattening.

It is performed by cutting them in the mid flank, on the left ſide, with a ſharp knife or lancet, taking out the uterus and cutting it off, and ſo ſtitching up the wound, anointing the part with tar, and keeping the animal warm for two or three days. The uſual way is to make the inciſion aſlope two inches and a half long, that the fore finger may be put in towards the back

to feel for the ovaries, which are two kernels as big as acorns on both ſides of the uterus, one of which is drawn to the wound, the ſtring thereof cut, and thus both taken out.

Kings SPEAR. See ASPHODEL.

SPEAR MINT. See MINT.

SPEEDWELL, [*Veronica.*] There are ſeveral ſpecies of this plant growing wild in different parts of the kingdom, as alſo in other parts of Europe, the Female Speedwell is admitted into the Materia Medica, as is alſo the Male Speedwell. The Male Speedwell is a rough procumbent plant, not unfrequently met with on dry commons, and in ſandy grounds. In taſte, ſmell, and medical virtues, it is ſimilar to the betonica, of which in its place: though the veronica is commonly ſuppoſed to have more of an aperient and pectoral virtue, and betony to be rather nervine and cephalic. Hoffman and Joh. Francus have written expreſs treatiſes on this plant, recommending infuſions of it, drank in the form of tea, as very ſalubrious in many diſorders, particularly thoſe of the breaſt. For Female Speedwell, ſee FLUELLIN.

SPELT. The name of a ſpecies of grain, which though commonly reckoned a ſummer corn, is ſowed either in autumn or in the ſpring, at the ſame time as wheat and rye. This grain, of which there are two ſorts, one with a ſingle, and the other with a double chaff, though both have always two ſeeds in each huſk, was formerly much eſteemed in Italy and Egypt, and is now very common in Germany, where they make of it bread, which is very nouriſhing and well taſted, but hard to digeſt. They likewiſe brew beer from it in ſome places. It was of this grain that the ancients made their frumenty, of which they were very fond. Though commonly ranked as a ſpecies of wheat, which it is not unlike when growing, its grain is ſmaller and of a blackiſh hue, its ſtalk thinner and leſs firm, and its ear flat and bearded, with ſeeds only on each ſide. Some writers diſtinguiſh a third ſort, by the name of white-rye, which they take to be the olyra of the Greeks and Latins; and ſeems to be what Mr. Mortimer calls taitico-ſpeltum, a ſort of naked barley, or wheat barley, cultivated in Staffordſhire, ſhaped like barley, but with a grain like wheat. It is much ſown at Rowley, Hamſtal, and Redmore, where they call it French barley. It makes good bread and good malt, and yields a good increaſe; and therefore would do well to be tried in other places. It ripens early, does beſt in a dry ſoil, and is not apt to be much hurt by birds, from which its beard and double huſk preſerve it.

SPIDERWORT. See *African* ASPHODEL.

SPIGNEL, [*Athamanta.*] Spignel is an unbelliferous plant, found wild in Italy, and the warmer parts of Europe, and ſometimes alſo in England. The roots have a pleaſant aromatic ſmell, and a warm, pungent, bitteriſh taſte: in virtue, they are ſimilar to the Lovage, from which this root ſeems to differ only in being weaker, and ſomewhat more agreeable. It is an uſeful aromatic and carminative, tho' at preſent little regarded.

SPIKE. A large nail.

SPIKE, SPIKE LAVENDER. } See *Lavender.*

SPINACH, [*Spinacia.*] A well-known plant, cultivated in kitchen gardens.

It requires a rich, light, and well looſened ſoil. It is propagated by its ſeeds only, of which there are two ſorts, namely, the rough and prickly, which produces the prickly ſpinach with arrow-pointed leaves, and the ſmooth, from which ſprings the ſpinach with oblong oval leaves.

The ſeeds of the firſt of theſe kinds, which is by much the hardieſt, and therefore fitteſt to be cultivated for winter uſe, ſhould be ſown upon an open ſpot of ground, in Auguſt, juſt before a ſhower of rain, if it can luckily be ſo timed: for if the ſeaſon ſhould prove dry for a long while after the ſowing, many of them will not ſprout at all, and the plants of thoſe that do grow will come up ſo irregularly, that half the crop will frequently be loſt. It therefore is highly adviſeable to water theſe ſeeds within two or three days after their being ſown, if rain does not fall in the mean time.

When the plants begin to be ſtrong, the ground on which they grow ſhould be well hoed, to deſtroy the weeds, and to thin the plants to the diſtance of three or four inches aſunderr. This, like

like all other hoeings, ſhould always be performed in dry weather, the more effectually to kill the weeds: or, if it be rainy, they ſhould be carried off the ground as ſoon as they are cut up, to prevent their taking freſh root: for if many of them ſpring up, and the ſeaſon prove wet, they will ſtifle the plants of the ſpinach, and make them rot. A ſecond careful hoeing is therefore neceſſary in about a month or five weeks after the firſt; and with the help of this the ſpinach will begin to be fit for uſe by the end of October. The beſt way of gathering it is, to crop off only the largeſt outer leaves, and to leave the middle ones to grow bigger: for by this means a regular ſupply may be had during the whole winter, and even till the ſubſequent ſpring ſowing ſhall have produced plants large enough for uſe, which generally is in April. The winter ſpinach will alſo then be ready to run up, and ſhould therefore be entirely cleared off, unleſs a parcel be left for ſeed, if wanted. But if early cabbages, which will want earthing up, have been planted among this ſpinach, as is the uſual practice of the gardeners about London, a ſeparate ſmall ſpot of ground ſhould be allotted purpoſely for ſowing ſome of this ſpinach for ſeed, without any other plants among it, and to cut up all the remains of the other winter crop, as ſoon as the ſpring ſpinach is fit for uſe.

The oblong oval leaved ſpinach, commonly called plantain ſpinach, which has thicker leaves and more ſucculent ſtalks than the former ſort, is ſown in the ſpring, likewiſe upon an open ſpot of fine rich earth. The London gardeners, who always endeavour to have as many crops in a ſeaſon as they poſſible can, generally mix radiſh ſeed with thoſe of the ſpinach which they ſow at this ſeaſon: but the beſt way for thoſe who have ground enough, is to ſow their ſpinach ſeeds alone. This crop muſt be hoed, cleared from weeds, and thinned, in the manner before directed for the winter ſpinach; and when the plants, which were at firſt left three or four inches aſunder, have grown ſo as to meet, it will be right to cut them out here and there for uſe, and to thin them in this manner, as they are wanted for the table, till thoſe that are left ſtand eight or ten inches aſunder. The thinnings in the mean time will give the remaining plants room to ſpread; and if, after this laſt, the ground between them is well ſtirred to a good depth, and kept perfectly clear from weeds, this ſort of ſpinach will frequently produce leaves as large as thoſe of the broad-leaved dock, and extremely fine.

A ſucceſſion of ſpinach may be had throughout the whole ſeaſon, by ſowing it every three weeks, from about the middle of January to near the end of May; only obſerving, that the earlieſt ſowings muſt be upon the naturally drieſt ſoils, and that the lateſt ſhould be thinned moſt at their firſt hoeing, becauſe the remains of the former crops will furniſh a ſupply till theſe are full grown, and the plants will not be ſo apt to run up to ſeed when they ſtand at a diſtance from each other, as when they are cloſe together.

In order to have good ſeeds of ſpinach, each particular ſort ſhould be ſown by itſelf, in an open ſpot of rich and well dug ground. This ſowing ſhould be in February, as ſoon as the danger of the froſt is over; and when the plants are come up, they ſhould be thinned with a hoe till they are ſix or eight inches aſunder every way. All weeds ſhould at the ſame time be carefully cut up and carried off: and in about three weeks or a month after this, the plants ſhould be hoed and thinned a ſecond time. Their diſtance from each other ſhould then be enlarged to at leaſt twelve or fourteen inches: for they will cover the ground very ſufficiently after they have ſhot out their ſide branches. Particular care is requiſite at this time to keep them very clear from weeds; becauſe theſe would make the plants of ſpinach run up weak, and thereby greatly injure them.

Mr. Miller is here extremely judicious in his directions for the farther management of ſpinach intended for ſeed. "When the plants, ſays he, have run up to flower, you will eaſily perceive two ſorts among them, viz. male and female. The male will produce ſpikes of ſtaminecus flowers, which contain the farina, and are abſolutely

though it is a much lower plant than the common sort, but they esteem it a much better grass. The seeds of this kind are smaller and flatter than those of the common sort, and have a white border round each.

To SPRIT. To shoot or sprout, as corn in vegetation.

SPARREWAY. A horse-way through inclosed lands.

SPROUTHILL. Anthill.

SQUASH. See GOURD.

SQUILL, [*Scilla.*] There are two sorts, one with a red, and the other a white root, which are supposed to be accidental varieties, but the white are generally preferred for medicinal use. The roots are large, somewhat oval-shaped, composed of many coats, lying over each other like onions; at the bottom come out several fibres. From the middle of the root arise several shining leaves, which continue green all the winter, and decay in the spring; then the flower-stalk comes out, which rises two feet high, is naked half way, and terminated by a pyramidal thyrse of flowers, which are white, composed of six petals, which spread open like the points of a star. This grows naturally on the sea-shores, and in the ditches, where the salt water flows with the tide, in most of the warm parts of Europe, so cannot be propagated in gardens, the frost in winter always destroying the roots, and for want of salt water they do not thrive in summer. Sometimes the roots, which are brought for use, put out their stems, and produce flowers without being planted in earth, as they lie in the druggists shops.

The root for medicinal use should be chosen plump, sound, fresh, and full of a clammy juice; some have preferred the red sort, others the white, though neither deserves the preference to the other; the only difference perceivable betwixt them, is that of the colour; and hence the college allow both to be used promiscuously. This root is to the taste very nauseous, intensely bitter and acrimonious: much handled, it exulcerates the skin. With regard to its medical virtues, it powerfully stimulates the solids, and attenuates viscid juices; and by these qualities, promotes expectoration, urine, and (if the patient is kept warm) sweat: if the dose is considerable, it proves emetic, and sometimes purgative. The principal use of this medicine is where the prime viæ abound with mucous matter, and the lungs are oppressed by tenacious phlegm. Dr. Wagner (in his clinical observations) recommends it given along with nitre, in hydropical swellings, and in the nephritis; and mentions several cures which he performed, by giving from four to ten grains of the powder for a dose, mixed with a double quantity of nitre: he says, that thus managed, it almost always operates as a diuretic, though sometimes it vomits or purges. The most commodious form for the taking of squills, unless when designed as an emetic, is that of a bolus or pill: liquid forms are to most people too offensive, though these may be rendered less disagreeable both to the palate and stomach, by the addition of aromatic distilled waters.

There are several species of squills, kept for the beauty of their flowers, besides those for medicinal purposes; among which are the flowers called the Starry Hyacinth, and the Hyacinth of Peru; they are all hardy, and propagated by seeds or offsets.

STABBING *of Cattle.* *See* HOVEN.

STAGGERS. *See* APOPLEXY.

STAFF *Tree.* *See* SPINDLE TREE.

STAGGERWORT. *See* Ragwort.

STAKE. A piece of wood, or a strong stick fixed in the ground.

STALE. Urine.

STALK. The stem or stock of a plant.

STALL. A crib at which an ox is fed, or where any horse is kept in a stable.

STALL-FED. Fed with dry feed, not with grass.

STALLION. A stone horse, designed for the covering of mares, in order to propagate the species.

STAMINA. Those fine threads or capillaments growing up within the flowers of tulips, lillies, and most other plants, around the style or pistil.

STAMINEOUS. An epithet applied to those flowers of plants which have no petals or flower-leaves, but consist only of a number of stamina and pistils placed in a cup.

STAMWOOD. The roots of trees grubbed up.

STANDARDS.

STANDARDS, *or* STANDRELS. Young trees reſerved at the felling of woods, for the growth of timber.

STANDARDS. Fruit-trees, intended to grow in an open expoſure, and not to be backed and mangled with the knife, as the dwarf trees, and thoſe planted againſt walls are.

Theſe ſtocks ſhould not exceed two years growth from the bud or graft when they are planted. They ſhould be faſtened to ſtakes till they have acquired ſufficient ſtrength not to be in danger of being blown down.

STANK. A dam, or bank to ſtop water.

STAR APPLE, [*Chryſophillum.*] This tree grows naturally in the Weſt-Indies, riſing to the height of thirty or forty feet, bearing an auſtere fruit about the ſize of a golden pippin, which however becomes mellow and agreeable by keeping. It is propagated by ſeeds, but in England requires the general aſſiſtance of tender exotics.

STAR *of Bethlehem,* [*Ornithegalum.*] This plant grows naturally near Briſtol, and ſome other parts of England. It has a pretty large bulbous root, from which come out ſeveral long keel-ſhaped leaves, which ſpread on the ground. There are ſeveral other ſpecies growing naturally in Spain, Portugal, Africa, and Arabia.

STARCH. The fineſt parts of wheat flour, manufactured into cakes.

STAR HYACINTH. See SQUILL.

STARWORT. See ASTER.

Yellow STARWORT. Elecampane.

STAVES ACRE, [*Staphidiſagria.*] This is a ſpecies of the larkſpur, growing naturally in the Levant and ſome parts of Italy. The ſeeds are large and rough, of an irregular triangular figure, of a blackiſh colour on the outſide, and yellowiſh or whitiſh within; they are uſually brought from Italy: the plant is not very common in this country, though it bears our ſevereſt colds. They have a diſagreeable ſmell, and a very naufeous bitteriſh burning taſte. Staveſacre was employed by the ancients as a cathartic; but it operates with ſo much violence both upwards and downwards, that its internal uſe has been, among the generality of practitioners, for ſome time laid aſide. It is chiefly employed, in external applications, for ſome kind of cutaneous eruptions, and for deſtroying lice and other inſects; inſomuch, that it has from this virtue received its name in different languages, *herba pedicularis, herbe aux poux, louſekraut, louſewort.*

STEE. A ladder.

STEM. That part of a plant ariſing from the root, and which ſuſtains the leaves, flowers, fruits, &c.

STEEPS. Certain preparations for ſteeping of corn intended to be ſown.

STELE. A ſtalk, a handle.

STEER. A young bullock.

STEG. A gander.

STERCORARY. A collection of dung properly ſecured from any injuries of the weather.

STERILE. Barren, unfruitful.

STEW. A ſmall kind of fiſh-pond, the peculiar intention of which is to maintain fiſh, and keep them for the daily uſes of a family.

STICKADORE. *See* CASSIDONY.

STOCK. The trunk or body of a fruit-tree, into which the graft, or bud is inſerted.

STOCK GILLIFLOWER. *See* GILLIFLOWER.

DWARF STOCK GILLIFLOWER, Dame's violet.

STONE. A certain quantity or weight of ſome commodities.

A ſtone of beef in London is the quantity of eight pounds; in Herefordſhire, twelve pounds; in the north 16 pounds; in other parts, 14 pounds.

A ſtone of wool, according to a ſtatute made in the eleventh year of the reign of Henry VII. is to weigh fourteen pounds, but in ſome places it is more, in others leſs; as in Glocesterſhire fifteen pounds, in Herefordſhire twelve pounds.

A ſtone, among horſemen, is the weight of fourteen pounds.

STONE BREAK. A perennial plant common in paſture grounds. The root has a ſharpiſh and aromatic taſte. The ſtalks are round, ſtreaked, and reddiſh towards the bottom. The leaves are ſmooth, of a dark green, and divided twice into long, narrow, ſharp ſegments. The foot-ſtalks are membraneous at the baſe. The flowers grow in looſe umbels; and are of a pale yellow colour. The ſeeds are oval, ſtreaked, and red at the top.

STONY *Lands.* Such as are full of flints, pebbles, or ſmall fragments of free-ſtone.

free-ſtone. Theſe lands, in many places, yield good crops, and the general rule is, that in ſtiff and cold lands the ſtones ſhould be as carefully picked out as poſſible, but in light and dry grounds they ſhould be left. In Oxfordſhire they have great quantities of a lean earth, and a ſmall rubble ſtone, or a four ſort of land mixed with it; this is ſometimes very full of weeds, and ſometimes very clear of them. If they are weedy they fallow them late; but if they are ſcary, as they call it, that is, if they have a ſward upon them, they either fold them in winter, and add ſome hay-ſeed to the ſheep's dung, to bring up the graſs; or elſe they lay old thatch or ſtraw, and dung upon it; for they reckon that if thoſe lands have no ſward upon them before they are fallowed, they will by no means be brought to bear a good crop, but a great deal of May-weed, and other uſeleſs weeds. In September, November, and December, they fallow as the ſward directs them; if this be done in either of the two laſt months, they call it a winter fallowing; and never ſtir it again, till they plow it, and ſow it with barley; and thoſe lands are reckoned to do better than if finely tilled. They will bear wheat and meſlin in a kindly year, and large crops of barley, if they are well managed, and kept in good heart.

They always fallow theſe lands every other year, unleſs they ſow peaſe upon them; ſometimes they ſow them with lentils, and when they are quite worn out, they lay them down for clover or rey-graſs. See - Gravel - Land.

STONE CROP. Wall pepper.

Free STONE CROP. Gooſe foot.

STOOMING *of Wine.* Putting bags of herbs, or other ingredients into it.

STOOP. A poſt fixed in the earth.

STOT. A young bullock; a ſteer.

STOVES. Buildings erected in gardens for the preſervation of tender exotic plants, which will not live in theſe northern countries, without artificial warmth in winter. Theſe are built in different methods, according to the ingenuity of the artiſt, or the different purpoſes for which they are intended; but in England they are at preſent reducible to two.

The firſt is called a dry ſtove, being ſo contrived, that the flues through which the ſmoke paſſes are either carried under the pavement of the floor, or elſe are erected in the back part of the houſe, over each other, and are returned 6 or 8 times the whole length of the ſtove. In theſe ſtoves are commonly placed the tender ſorts of aloes, cereus's, euphorbiums, tithymals, and other ſucculent plants, which are impatient of moiſture in winter; and therefore require, for the moſt part, to be kept in a ſeparate ſtove, and not placed among trees, or herbaceous plants, which perſpire freely, and thereby often cauſe a damp air in the houſe, which is imbibed by the ſucculent plants, to their no ſmall prejudice.

Theſe ſtoves may be regulated by a thermometer, ſo as not to over-heat them, nor to let the plants ſuffer by cold; in order to which all ſuch plants as require nearly the ſame degree of heat, ſhould be placed by themſelves in a ſeparate houſe; for if in the ſame ſtove there are plants placed of many different countries, which require as many different heats, by making the houſe warm enough for ſome plants, others, by having too much heat, are drawn and ſpoiled.

The other ſorts of ſtoves are commonly called bark ſtoves, to diſtinguiſh them from the dry ſtoves already mentioned. Theſe have a large pit, nearly the length of the houſe, three feet deep, and ſix or ſeven feet wide, according to the breadth of the houſe; which pit is filled with freſh tanner's bark, to make an hot-bed; and in this bed the pots of the moſt tender exotic trees, and herbaceous plants, are plunged: the heat of this bed being moderate, the roots of the plants are always kept in action; and the moiſture, detained by the bark, keeps the fibres of their roots in a ductile ſtate, which, in the dry ſtove, where they are placed on ſhelves, are ſubject to dry too faſt, to the great injury of the plants. In theſe ſtoves, if they are rightly contrived, may be preſerved the moſt tender exotic trees and plants, which, before the uſe of the bark was introduced, were thought impoſſible to be kept in England; but, as there is ſome ſkill required in the ſtructure of both theſe ſtoves, we ſhall deſcribe them as intelligibly as poſſible, particularly the bark ſtove; by which it is hoped every curious perſon

perſon will be capable of directing his workmen in their ſtructure.

The dimenſion of this ſtove ſhould be proportioned to the number of plants intended to be preſerved, or the particular fancy of the owner; but their length ſhould not exceed forty feet, unleſs there are two fire-places; and in that caſe, it will be proper to make a partition of glaſs in the middle, and to have two tan-pits, that there may be two different heats for plants from different countries, for the reaſons before given in the account of dry ſtoves; and a range of ſtoves, they ſhould be all built in one, and only divided with glaſs partitions, at leaſt the half way toward the front; which will be of great advantage to the plants, becauſe they may have the air in each diviſion ſhifted by ſliding the glaſſes of the partitions, or by opening the glaſs-door, which ſhould be made between each diviſion, for the more eaſy paſſage from one to the other.

This ſtove ſhould be raiſed above the level of the ground, in proportion to the dryneſs of the place; for, if it be built on a moiſt ſituation, the whole ſhould be placed upon the top of the ground; ſo that the brick-work in the front muſt be raiſed three feet above the ſurface, which is the depth of the bark-bed, whereby none of the bark will be in danger of lying in water; but, if the ſoil be dry, the brick work in front need not be more than one foot above-ground, and the pit may be ſunk two feet below the ſurface. Upon the top of this brick work, in front, muſt be laid the plate of timber, into which the wood work of the frame is to be mortiſed; and the upper timber in front muſt be placed four feet aſunder, or ſomewhat more, which is the proportion of the width of the glaſs-doors or ſaſhes: theſe ſhould be about ſix feet and a half, or ſeven feet long, and placed upright; but from the top of theſe ſhould be ſloping glaſſes, which ſhould reach within three feet of the back of the ſtove, where there ſhould be a ſtrong crown-piece of timber placed, in which there ſhould be a groove made for the glaſſes to ſlide into. The wall in the back part of the ſtove ſhould be at leaſt thirteen inches thick; but eighteen inches is ſtill better; becauſe, the thicker the outſide wall is built, the more the heat of the flues will be kept in the houſe; and carried up, about nine feet above the ſurface of the bark-bed; and from the top of this wall, there ſhould be a ſloping roof to the crown-piece where the glaſſes ſlide in. This crown-piece ſhould be about ſixteen feet high from the ſurface of the bark-bed or floor, which will give a ſufficient declivity to the ſloping glaſſes to carry off the wet, and be of a reaſonable height for containing many tall plants. The back roof may be ſlated, covered with lead, or tiled, according to the fancy of the owner: for the manner of this outſide building is often very various, and differently built.

In the front of the houſe there ſhould be a walk, about eighteen or twenty inches wide, for the conveniency of walking; next to which the bark pit muſt be placed, which ſhould be in width proportioned to the breadth of the houſe: if the houſe is twelve feet wide, which is a due proportion, the pit may be ſeven feet wide; and behind the pit ſhould be a walk eighteen inches wide, to paſs in order to water the plants, &c. then there will be twenty-two inches left next the back wall, to erect the flues, which muſt be all raiſed above the top of the bark-bed; theſe flues ought to be one foot wide in the clear, that they may not be too ſoon ſtopped with the ſoot; and the lower flue, into which the ſmoke firſt enters from the fire, ſhould be two feet deep in the clear; and this may be covered either with caſt-iron plates, or broad tiles; over this the ſecond flue muſt be returned back again, which may be eighteen inches deep, and covered on the top as before; and ſo, in like manner, the flues may be returned over each other three or four times, that the heat may be ſpent before the ſmoke paſſes off. The thickneſs of the wall in front of theſe flues need not be more than four inches; but it muſt be well jointed with mortar, and plaiſtered within ſide to prevent the ſmoke from getting into the houſe; and the outſide ſhould be faced with mortar, and covered with a coarſe cloth, to keep the mortar from cracking, as is practiſed in ſetting up coppers. If this be carefully done

there will be no danger of the ſmoke entering the houſe, which cannot be too carefully avoided; for there is nothing more injurious to plants than ſmoke, which will cauſe them to drop their leaves; and if it continue long in the houſe, will entirely deſtroy them.

The fire place may be made either at one end, or in the middle, according as there is moſt conveniency; for, whereever it is placed, it ſhould have a ſhed over it, and not be expoſed to the open air; for it will be impoſſible to make the fire burn equally, where the wind has full ingreſs to it; and it will be troubleſome to attend the fire in wet weather, where it is expoſed to the rain.

The contrivance of the furnace muſt be according to the fuel which is deſigned to burn; but as turf is the beſt firing for ſtoves, where it can be had, becauſe it burns more moderately, and laſts longer than any other ſort of fuel, and ſo requires leſs attendance, I ſhall deſcribe a proper ſort of furnace for that purpoſe.

The whole of this furnace ſhould be erected within the houſe, which will be a great addition to the heat; and the front wall on the outſide of the fire-place, next the ſhed, ſhould be three bricks thick, the better to prevent the heat from coming out that way. The door of the furnace, at which the fuel is put in, muſt be as ſmall as conveniently may be to admit of the fuel; and this door ſhould be placed near the upper part of the furnace, and made to ſhut as cloſe as poſſible; ſo that there may but little of the heat paſs off through it. This furnace ſhould be about twenty inches deep, and ſixteen inches ſquare at the bottom, but may be ſloped off on every ſide, ſo as to be two feet ſquare at the top; and under this furnace ſhould be a place for the aſhes to fall into, which ſhould be about a foot deep, and as wide as the bottom of the furnace: this ſhould alſo have an iron door to ſhut as cloſe as poſſible; but juſt over the aſh-hole, above the bars which ſupport the fuel, ſhould be a ſquare hole about four inches wide to let the air in to make the fire burn: this muſt alſo have an iron frame, and a door to ſhut cloſe when the fire is perfectly lighted, which will make the fuel laſt the longer, and the heat will be more moderate.

The top of this furnace ſhould be nearly equal to the top of the bark-bed, that the loweſt flue may be above the fire; ſo that there may be a greater draught for the ſmoke; and the furnace ſhould be covered with a large iron plate, cloſely cemented to the brick-work, to prevent the ſmoke from getting out; or it may be arched over with bricks; but you ſhould be very careful, wherever the fire is placed, that it be not too near the bark-bed; for the heat of the fire will, by its long continuance, dry the bark, ſo that it will loſe its virtue, and be in danger of taking fire; to prevent which, it will be the beſt method to continue an hollow between the brick-work of the fire and that of the pit, about eight inches wide; which will effectually prevent any damage ariſing from the heat of the fire; and there ſhould be no wood-work placed any where near the flues, or the fire-place, becauſe the continual heat of the ſtove may in time dry it ſo much, as to cauſe it to take fire; which ought to be very carefully guarded againſt.

The entrance into this ſtove ſhould be either from a green-houſe, the dry ſtove, or elſe through the ſhed where the fire is made, becauſe in cold weather, the front-glaſſes muſt not be opened.

The other ſort of ſtove, which is commonly called the dry ſtove, as was before ſaid, may be either built with upright and ſloping glaſſes at the top, in the ſame manner, and after the ſame model of the bark-ſtove; or elſe the front glaſſes, which ſhould run from the floor to the ceiling, may be laid ſloping, to an angle of forty-five degrees, the better to admit the rays of the ſun in ſpring and autumn: the latter method has been chiefly followed by moſt perſons who have built this ſort of ſtoves; but it is a better method to have it built after the model of the bark ſtove, with upright glaſſes in front, and ſloping glaſſes over them, becauſe this will more eaſily admit the ſun at all the different ſeaſons; for in ſummer, when the ſun is high, the top glaſſes will admit the rays to ſhine almoſt all over the houſe; and in winter, when the ſun is low, the front

front glaſſes will admit its rays; whereas, when the glaſſes are laid to any declivity in one direction, the rays of the ſun will not fall directly thereon above a fortnight in autumn, and about the ſame time in ſpring; and, during the other parts of the year, they will fall obliquely thereon; and in ſummer, when the ſun is high, the rays will not reach above five or ſix feet from the glaſſes.

Beſides, the plants placed towards the back part of the houſe will not thrive in the ſummer ſeaſon for want of air; whereas, when there are ſloping glaſſes at the top, which run within four feet of the back of the houſe; theſe, by being drawn down in hot weather, will let in perpendicular air to all the plants; and, of how much ſervice this is to all ſort of plants, every one who has had opportunity of obſerving the growth of plants in a ſtove, will eaſily judge; for when plants are placed under cover of a ceiling, they always turn themſelves towards the air and light, and thereby grow crooked; and if, in order to preſerve them ſtrait, they are turned every week, they will nevertheleſs grow weak, and look pale and ſickly, like a perſon ſhut up in a dungeon; for which reaſons, whoever has made trial of both ſorts of ſtoves, will recommend the model of the bark-ſtove for every purpoſe. *Miller's Gardener's Dictionary.*

STOVER. Fodder for cattle.

STOUND. A wooden veſſel to put ſmall beer in.

STOWK. The handle of a pail; alſo a ſhock of twelve ſheaves.

STOWRE. A round of a ladder; a hedge-ſtake; alſo the ſtaves in the ſides of a waggon, in which the everings are faſtened.

STRAIN, or SPRAIN. A violent extenſion of the ſinews or tendons of ſome muſcle, whereby the tendinous fibres are over-ſtretched, and ſometimes ruptured or broken.

As ſoon as a Horſe is ſtrained, we adviſe to turn the horſe to graſs immediately, external applications will then not be wanted, and if this be not done, applications will be of little or no uſe. Perhaps as good an embrocation as can be uſed is four ounces of good Vinegar and two ounces of Camphorated Spirit of Wine, with which the part may be bathed twice a day.

STRANGLES. A diſtemper to which colts and young horſes are very ſubject; it begins with a ſwelling between the jaw-bones, which ſometimes extend to the muſcles of the tongue; and is attended with ſo great heat, pain, and inflammation, that ſometimes till matter is formed, the horſe ſwallows with the utmoſt difficulty.

Keep your horſe tolerably warm, give him doſes of nitre and ſulphur twice a day, with meſhes of bran and water barely warm.

STRANGURY. A diſeaſe in Cattle to be cured by giving decoctions of Marſhmallow roots, in which a little Nitre and Gum Arabic is diſſolved; keeping the body open with clyſters.

STRAW the ſtalk of Corn.

STRAWBERRY [*Fragaria.*] The diſtinct ſpecies are, 1. the Wood-Strawberry; 2. the Virginian or ſcarlet Strawberry 3. the Hautboy; 4. the Chili Strawberry; with ſeveral other varieties.

An ingenious writer in the Muſeum Ruſticum has obliged the world with the following method of cultivating ſtrawberries.

"I have them, ſays he, of ſeveral kinds; and the fruit, in the ſeaſon, is in great perfection, being large, and poſſeſſing a fine flavour. Theſe I procure with no great trouble or difficulty in the cultivation.

"I plant them in regular rows on beds three feet wide. The ſoil I chuſe for them is a good, natural, freſh, rich loam: the leſs it requires of manure the better, the fruit being the ſweeter and finer.

"On each of theſe beds abovementioned, I plant three rows of plants, in quincunx order, at fifteen inches diſtance every way; and I rather chuſe to plant them each on a little hillock, as it were, ſomething in imitation of hops.

"Between the beds are intervals of the ſame width.

"My next care is, by frequent hoeing, to keep my plants as clear from weeds as poſſible, by which they are ſure to be ſupplied with plenty of nouriſhment; a matter of great conſequence, particularly when the fruit is ſet, as then they require moſt, and the weeds are alſo at that ſeaſon moſt luxuriant;

luxuriant: I therefore then ſtir the earth with the hoe often, which anſwers as I have ſaid before, a double purpoſe.

"I obſerve to keep my plants as clear as poſſible from runners; by which means my fruit is larger, and ſooner ripe than it would otherwiſe be.

"When my ſtrawberry plants have borne fruit two ſucceſſive years on the beds, I get the alleys, or intervals, dug up and prepared, into which I tranſplant them in the ſame manner they were planted in the firſt-mentioned beds, which then become in their turn the intervals.

"Here they remain two years more, when I again remove them into freſh land prepared for the purpoſe, in this manner never letting them bear fruit more than two years in one ſpot.

"I cannot eaſily deſcribe to you the great benefit this method of management is of to the plants, which are thereby greatly invigorated, and the fruit prodigiouſly improved, both in point of ſize and flavour, inſomuch that they appear to be quite of a different nature from thoſe of my neighbours, who firſt furniſhed me with the plants."

STRAWBERRY BLITE. *See* Blite.

STRAWBERRY SPINACH. *See* Blite.

STRAWBERRY TREE, [*Arbutus*.] The ſpecies are, 1. Strawberry-tree with ſmooth ſawed leaves, berries having many ſeeds, and an upright trunk. This ſort grows naturally in Italy, Spain, and alſo in Ireland, and is now very common in the Engliſh gardens. It produces the following varieties, viz. one with an oblong flower and oval fruit; another with a double flower; and a third with red flowers.

2. Strawberry tree with ſmooth entire leaves, berries full of ſeeds, and an erect woody ſtem. This kind grows in the eaſt, particularly about Magneſia, where it is ſo plenty, as to be the principal fuel uſed by the inhabitants of the country. This grows to a middle-ſized tree; the branches are irregular, and are garniſhed with large oval leaves, ſomewhat like thoſe of the Bay tree, but not quite ſo long; theſe are ſmooth and entire, having no ſerratures on their edges; the flowers are ſhaped like thoſe of the common Arbutus, but grow thinly on the branches. The fruit is oval, and of the ſame colour and conſiſtence with the common ſort, but the ſeeds of this are flat, whereas thoſe of the common ſort are pointed and angular.

3. Arbutus with trailing ſtalks, oval leaves, ſomewhat indented, flowers growing looſely, and many ſeeds. This ſort grows naturally in Acadia, and other northern parts of America, upon ſwampy land, which is frequently overflowed with water; this is a low, buſhey ſhrub, with ſlender trailing branches, which are garniſhed with oval leaves, a little ſawed on their edges; the flowers come out from the wings of the leaves, growing in thin looſe bunches. The fruit of this ſort is never produced in England, and it is with great difficulty the plants are kept alive here.

4. Arbutus with trailing ſtalks and rough ſawed leaves. This grows naturally on the Alps and the Helvetian mountains. It never riſes high, but ſends out from the root many ſlender branches, which trail upon the ground, garniſhed with oblong rough leaves, of a pale green colour; the flowers are produced from the wings of the leaves, upon long ſlender foot-ſtalks, and are ſucceeded by berries abou tthe ſize of the common black Cherry, which are firſt green, afterwards red, and when ripe are black. Theſe are of a pleaſant taſte, ſo are frequently eaten by the inhabitants of thoſe countries where they grow naturally. This is a very difficult plant to keep alive in gardens, for it is an inhabitant of bogs, growing among moſs. Where the ground is never dry.

5. Arbutus with trailing ſtalks and entire leaves. This grows naturally upon the mountains in Spain, and in moſt of the northern parts of Europe. The branches trail on the ground, which are cloſely garniſhed with ſmooth thick leaves of an oval form, placed alternately; the flowers are produced in ſmall bunches towards the extremity of the branches, which are ſhaped like thoſe of the common ſort, but ſmaller; and are ſucceeded by berries, of the ſame ſize with thoſe of the former ſort, which are red when ripe.

The common Strawberry tree is well known, being at preſent in moſt of

of the Engliſh gardens, and one of their greateſt ornaments in the months of October and November, that being the ſeaſon when the trees are in flower, and the fruit of the former year is ripe, for the fruit is a whole year growing to perfection; ſo that the fruit which is produced from the flowers of one year do not ripen till the bloſſoms of the ſucceeding year are fully blown; when there is plenty of fruit and flowers upon the trees they make a fine appearance, and at a ſeaſon when moſt other trees are paſt their beauty.

Thoſe trees which have large oval fruit make the greateſt figure, their flowers being larger, and oblong. The ſort with double flowers is a curioſity; but as the flowers have only two orders of leaves, ſo they make no great appearance; nor do the trees produce fruit in any plenty, therefore the other is preferable. The ſort with red flowers makes a pretty variety, when intermixed with the other; for the outſides of them are of a fine red colour at their firſt appearance, and afterwards they change to purple before they fall off. The fruit of this is the ſame with the common ſort. All theſe varieties are preſerved by inarching or grafting them upon the common Arbutus, for the ſeeds of either do not produce the ſame kind; though from the ſeeds of the oval fruit, there are generally many more of the ſame produced than from the ſeeds of the common ſort.

The beſt method to propagate the Arbutus is from ſeeds; therefore when the fruit is perfectly ripe, it ſhould be gathered and mixed with dry ſand, to preſerve it till the time for ſowing; the ſureſt method of raiſing the plants is to ſow the ſeeds in pots, which ſhould be plunged into an old bed of tanner's bark, which has loſt its heat, covering the bed with glaſſes, &c. to keep out the froſt; this ſhould be done in December; if the ſeeds are good, and as the ſpring advances the pots are refreſhed with water, the plants will come up the beginning of April, when they ſhould be frequently but ſparingly watered, and conſtantly kept clean from weeds.

As the ſummer advances, if the plants are ſhaded in the heat of the day, it will greatly promote their growth; but in warm weather they muſt be open all night to receive the dew, ſo ſhould only be covered in the middle of the day: with this management the plants will riſe to the height of five or ſix inches the firſt ſummer.

STRICKLE. The whet-ſtone placed upon the extremity of the ſhaft of a ſcythe.

STRIKE. A buſhel, or four pecks of corn.

STRINGHALT. A diſeaſe in horſes, conſiſting in a twitching and ſnatching up of the hinder leg much higher than the other. *See Spring-halt.*

STUBBLE. The ſtalks of corn left in the field by the reaper. *Halm.*

STUM. The unfermented juice of the grape, after it has been ſeveral times racked off, and ſeparated from its ſediment.

STUMP. The part of any ſolid body, particularly of trees, &c. remaining after the reſt are taken away.

STUMPY. Full of ſtumps; hard, ſtiff.

STURK. A young bullock.

STY. A cabbin or ſmall building to keep hogs in.

SUCCORY. See ENDIVE.

GUM SUCCORY. See GUM SUCCORY.

SACCHARUM. The ſugar cane. This plant grows naturally in the Weſt-Indies, Arabia, &c. where its juice is boiled, and made into ſugar.

SUGAR MAPLE. See MAPLE.

SUCKER. A young twig, or ſhoot from the root.

SUFFOLK GRASS. The ſame with meadow-graſs, or poa.

SULLAGE. A drain of filth.

SULL. A plough.

SULL-PADDLE. A plough paddle.

SULPHURWORT. Hogs fennel.

SULTAN FLOWER, SWEET SULTAN, } A ſpecies of centaury, which may be propagated by ſowing the ſeeds, on a hot-bed in the ſpring, and then managing them as other annuals, not very hardy.

SUMACH, [*Rhus.*] This tree, or ſhrub, is cultivated in ſome places on account of the culinary uſes of its fruits, and for the purpoſes of the dyers, &c. among us, it is met with only in the gardens of the curious. The ſeeds or berries are of a red colour, in ſhape round and flat. Both theſe and the

the leaves are moderately aſtringent, and have ſometimes been exhibited in this intention, but are now become ſtrangers to the ſhops.

There are ſeveral ſpecies, no leſs than 15, reckoned by Miller, which are kept in the gardens for variety or ornament; ſome of which, natives of Africa, are too tender to bear the open air of the winters in England. They are all propagated by cuttings or layers.

SUMMER. The ſeaſon in which the ſun arrives at the northern ſolſtice, and the days are at the greateſt length.

SUMMER, alſo implies the large piece of timber, or principal beam, of a floor.

To SUMMER-LAND, or *To* SUMMER-STIR. To fallow land in the ſummer. *See Fallow Crops.*

SUNDEW. See ROS SOLIS.

SUN-FLOWER. The name of a well-known flower, much cultivated in large gardens.

The ſun-flower is an annual plant, and the ſeeds ſhould be ſown every ſpring in a bed of good light earth. When the ſhoots are about three inches they ſhould be tranſplanted into nurſery beds, and ſet at eight inches diſtance every way; they ſhould remain there till they are a foot high, and then be carefully taken up with a ball of earth at their roots, and planted in large borders, or intermixed with flowering ſhrubs, and other large plants; they muſt be frequently watered till they have taken root, after which they require no other care. The flowers appear in July, and ſtand a conſiderable time: the largeſt of them ſhould be preſerved for ſeed. The birds are very fond of the ſeed of the ſun-flower, and muſt therefore be carefully guarded from them, and the head left on the plant till October, at which time it ſhould be cut off, and hung up to dry in an airy place, and in a month more the ſeeds will be perfectly hardened.

Dwarf SUN-FLOWER, [*Rudbeckia.*] This is a native of North-America, but will bear ſometimes in the open air of our Engliſh climate; there are ſeveral ſpecies, which are propagated by parting the roots.

SUN-SCORCHED. A term uſed in ſome parts of England to expreſs a diſtemperature of fruit-trees, owing to the ſun's affecting them too forcibly on a ſudden; the conſequence of which is the loſs and withering of the fruit. Such trees only are ſubject to this, as are planted in places ſheltered from the ſpring ſun, and open to that of the ſummer; and may be always cured by proper waterings.

SUNSPURGE. Euphorbium.

SURBATING. A term uſed by farriers to ſignify the ſole of a horſe's foot being worn, bruiſed, or ſpoiled by beating the hoof againſt the ground in travelling without ſhoes, or going in hot ſandy lands, or with a ſhoe that hurts the ſole, or the like. It alſo ſometimes happens by over riding a horſe while young, before his feet are ſufficiently hardened, or even by the hardneſs of the ground, and high lifting of his feet. The ſigns of this defect are his halting on both fore legs, going ſtiffly, and creeping as if foundered.

There is nothing better for ſurbated feet than tar melted into the foot, or vinegar boiled with ſoot to a proper conſiſtence and poured into the foot boiling hot, with hurds over it, and ſplints to keep it in.

SURFEIT. A diſeaſe incident to horſes and other cattle.

Surfeits ariſe from various cauſes; but are commonly the effects of ſome diſeaſes not attended to, or that have been ill cured.

A horſe is ſaid to be ſurfeited, when his coat ſtares, and looks ruſty and dirty, though proper means have not been wanting to keep him clean. The ſkin is full of ſcales and dander, that lays thick and mealy among the hair, and is conſtantly ſupplied with a freſh ſucceſſion of the ſame, for want of due tranſpiration. Some horſes have hurdles of various ſizes like peaſe or tares: ſome have dry fixed ſcabs all over their limbs and bodies; others a moiſture attended with heat and inflammation; the humours being ſo ſharp, and violently itching, that the horſes rub ſo inceſſantly, as to make themſelves raw. Some have no eruptions at all, but an unwholſome look, and are dull, ſluggiſh, and lazy: ſome appear only lean and hide-bound: others have flying pains and lameneſs, reſembling a rheumatiſm: ſo that in the ſurfeits of horſes, we have almoſt all the different ſpecies of the ſcurvy, and other chronical diſtempers.

The

The following method is usually attended with success in the dry species. First take away about three or four pounds of blood; and then give the following mild purge, which will work as an alterative, and should be repeated once a week or ten days for some time.

Take Succotrine aloes six drams, or one ounce; gum guaiacum half an ounce; diaphoretic antimony, and powder of myrrh, of each two drams: make into a ball with syrup of buckthorn.

In the intermediate days, an ounce of the following powder should be given morning and evening in his feeds.

Take native cinnabar, or cinnabar of antimony, finely powdered, half a pound; crude antimony, in fine powder, four ounces; gum guaiacum, also in powder, four ounces: make into sixteen doses for eight days.

This medicine must be repeated till the horse coats well, and all the symptoms of surfeit disappear. If the horse is of small value, two or three common purges should be given, and half an ounce of antimony, with the same quantity of sulphur, twice a day, or the alterative balls with camphor and nitre.

If the little scabs on the skin do not peel off, anoint them with the mercurial ointment; during the time of using which, it will be proper to keep the horse dry, and to give him warm water. This ointment properly rubbed into the blood, with the assistance of purging physick, has frequently cured these kinds of surfeits, without any other assistance.

The wet surfeit, which is no more than a moist running scurvy, appears on different parts of the body of a horse, attended sometimes with great heat and inflammation; the neck oftentimes swells so in one night's time, that great quantities of a hot briny humour issue forth, which, if not allayed, will be apt to collect on the poll or withers, and produce the poll-evil or fistula. This disease also frequently attacks the limbs, where it proves obstinate, and hard to cure: and in some horses shews itself spring and fall.

In this case bleed plentifully, avoid externally all repellers, and give cooling physic twice a week; as, four ounces of lenitive electuary, with the same quantity of cream of tartar; or the latter, with four ounces of Glauber salts, quickened, if thought proper, with two or three drams of powder of jalap, dissolved in water-gruel, and given in a morning fasting.

After three or four of these purges, two ounces of nitre made into a ball with honey may be given every morning for a fortnight; and if attended with success, repeated for a fortnight longer.

The powders above-mentioned may also be given with the horse's corn; or a strong decoction of guaiacum shavings, or logwood, may be given alone to the quantity of two quarts a day. These, and indeed all alterative medicines, must be continued for a long time, where the disorder proves obstinate.

The diet should be cool and opening, as scalded bran or barley; and if the horse is hide-bound, an ounce of fenugreek seeds should be given in his feeds for a month or longer; and as this disorder often proceeds from worms, give the mercurial physic too, and afterwards the cinnabar powders, as above directed; but as in general it is not an original disease, but a symptom only of many, in the cure, regard must be had to the first cause: thus, as it is an attendant on surfeits, fevers, worms, &c. the removal of this complaint must be variously effected.

In a mangy horse the skin is generally tawny, thick, and full of wrinkles, especially about the mane, the loins and tail, and the little hair that remains in those parts stands almost always strait out or bristly: the ears are commonly naked and without hair, the eye and eye-brows the same; and when it affects the limbs, it gives them the same aspect; yet the skin is nor raw, nor peels off, as in the hot inflamed surfeit.

Where this distemper is caught by infection, if taken in time it is very easily cured; and we would recommend a sulphur ointment as most effectual for that purpose, rubbed in every day. To purify and cleanse the blood, give antimony and sulphur for some weeks after. There are a great

variety of external remedies for this purpoſe, ſuch as train oil and gunpowder, tobacco ſteeped in chamberlye, &c. Solleyſell recommends the following:

Take burnt allum and borax in fine powder, of each two ounces; white vitriol and verdigreaſe powdered, of each four ounces; put them into a clean pot, with two pounds of honey, ſtirring till they are incorporated; when cold, add two ounces of ſtrong aquafortis.

But when this diſorder is contracted by low feeding, and poverty of blood, the diet muſt be mended, and the horſe properly indulged with hay and corn. The following ointments are effectually uſed for this diſorder, rubbed into the parts affected every day:

Take powdered brimſtone, train oil, and tar, of each equal quantities; to which may be added ginger, or white hellebore. Or,

Take ſulphur vivum, half a pound, crude ſal ammoniac one ounce; hogs lard, or oil, a ſufficient quantity to form into an ointment.

Or this:

Take quickſilver, and oil of vitriol, of each one ounce; hogs lard, one pound, ſulphur vivum four ounces, oil of turpentine one ounce and half.

Theſe are both very powerful remedies for this diſorder, and can ſcarce fail of ſucceſs.

To the two firſt, occaſionally, may be added a third part of mercurial ointment; but as ſulphur is in general allowed to be the ſpecific in the itch, and being found both more ſafe and efficacious than mercury; ſo we apprehend it will ſufficiently anſwer the purpoſe here; for as this diſorder ſeems beſt accounted for by Leuwenhoek, from certain ſmall inſects he diſcovered in the puſtules by the microſcope; ſo it ſeems as if they were deſtroyed by the ſteams of brimſtone, though only raiſed by the heat of the body; for in the human body, the itch may be cured by partial ſulphureous unctions on the legs only; but where the mange proves obſtinate in horſes, let the parts be waſhed with ſublimate water before the application of the ointment, and ſubjoin the internal uſe of ſulphur, in order to diffuſe the ſteams more certainly through the ſkin; there being reaſon to believe, as in the itch, that the animalculæ may ſometimes lie too deep to be thoroughly deſtroyed by external applications only.

SUGAR. The eſſential ſalt of the *arundo ſaccharifera*, a beautiful large cane growing ſpontaneouſly in the Eaſt-Indies, and ſome of the warmer parts of the Weſt, and cultivated in great quantity in our American plantations. The expreſſed juice of the cane is clarified with the addition of lime water (without which it does not aſſume the form of a true ſugar) and boiled down to a due conſiſtence; when, being removed from the fire, the ſaccharine part concretes from the groſſer unctuous matter, called treacle, or melaſſes. This, as yet impure or brown ſugar, is farther purified, in conical moulds, by ſpreading moiſt clay on the upper broad ſurface: the watery moiſture, ſlowly percolating through the maſs, carries with it a conſiderable part of the remains of the treacly matter. This clayed ſugar, imported from America, is by our refiners diſſolved in water, the ſolution clarified by boiling with whites of eggs and deſpumation, and after due evaporation poured into moulds: as ſoon as the ſugar has concreted, and the fluid part drained off, the ſurface is covered with moiſt clay as before. The ſugar, thus once refined, by a repetition of the proceſs, becomes the double-refined ſugar of the ſhops. The candy, or cryſtals, are prepared by boiling down ſolutions of ſugar to a certain pitch, and then removing them into a hot room, with ſticks ſet acroſs the veſſel for the ſugar to ſhoot upon: theſe cryſtals prove of a white or brown colour, according as the ſugar was pure or impure.

The uſes of ſugar as a ſweet, are ſufficiently well known. The impure ſorts contain an unctuous, or oily matter, in conſequence of which they prove emollient and laxative. The cryſtals are moſt difficult of ſolution, and hence are propereſt where this ſoft lubricating ſweet is wanted to diſſolve ſlowly in the mouth.

SURVEYING. The art or act of meaſuring of lands; that is, of taking

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the dimenſions of any field, parcel, or tract of land, laying down the ſame in a map or draught, and finding the area or content thereof.

SWALLOW WORT, [*Vincetoxicum*] Tame poiſon.

SWAMP. A hollow, watery place, in any part of a field; a bog. See Bog.

SWANG. A freſh piece of green ſward lying in a bottom among arable or barren land.

SWARD. The ſurface of the ground.

SWARM. A large number of bees, ſeeking a proper ſettlement. See Bee.

SWATH, or *Swarth*. A line of graſs, &c. cut down by the mower.

SWATH-BUCK. A ſwarth, or line of new-mown graſs or corn.

SWATH-RAKE. A rake about two yards long, with iron teeth, and a bearer in the middle, to which a man fixes himſelf with a belt; and when he has gathered as much as his rake will hold, he raiſes it and begins again. This inſtrument is in ſome counties called a dow-rake, and much uſed in Eſſex for gathering barley after mowing.

Sweet Apple. *See* Cuſtard Apple.

Sweet Pea. *See* Everlaſting Pea.

Sweet John, } *See* Carna-
Sweet William, } tion.

Sweet Willow. Candleberry-tree.

SWEAL. To ſinge, or burn off the hair, &c.

SWILL. A veſſel to waſh in, ſtanding on three feet. *Hog-drink.*

SWINE. See Hog.

SWINE-CRUE. A hog's-ſty.

SWINE-HERD. A keeper of ſwine.

SWINHULL. A hog's-ſty.

Swine's Cress. Scurvy-graſs.

Swolled or Swelled Neck. See Clush.

SYCAMORE, or *Wild Fig-Tree*, falſely ſo called, is our acer majus, or broad-leaved Mas, one of the maples, and is much more in reputation for its ſhade than it deſerves; for the honey-dew leaves, which fall early, like thoſe of the aſh, turn to mucilage and noxious inſects, and putrefy with the firſt moiſture of the ſeaſon, ſo as they contaminate and marr our walks; and are therefore, by my conſent, to be baniſhed from all curious gardens and avenues. It is raiſed of the keys in the huſk, as ſoon as ripe, and they come up the firſt ſpring; alſo by roots and layers, in ground moiſt, not over wet or ſtiff, and muſt be governed as other nurſery plants. There is in Germany a better ſort of ſycamore than ours (nor are ours indigenous) wherewith they make ſaddle-trees, and divers other things of uſe. Our own is excellent for trenchers, cart and plow-timber, being light, tough, and not much inferior to aſh itſelf; and if the trees be very tall and handſome, they are the more tolerable for diſtant walks, eſpecially where other better trees proſper not ſo well, or where a ſudden ſhade is expected: Some commend them to thicken copſes, eſpecially in parks, as leaſt apt to the ſpoil of deer, and that it is good fire-wood. This tree being wounded, bleeds a great part of the year; the liquor emulating that of the birch. The ſap is ſweet and wholeſome, and in a ſhort time yields ſufficient quantity to brew with, ſo as with one buſhel of malt is made as good ale as four buſhels with ordinary water, upon Dr. Tongue's experience. Phil. Tranſ. vol. iv. fol. 917.—*Evelyn.*

SYRINGA. Lilac.

SYTHE. See Scythe.

T.

TABERN. A cellar.

TAGGE. A ſheep of the firſt year.

TAIL-SOAKED. A diſeaſe incident to cows, by which the joint of the tail near the rump, will, as it were, rot away. The cure is generally performed by cutting a deep gaſh into the part affected, then rubbing a handful of ſalt into the wound, and binding it with a rag. Others mix ſoot and a clove of garlick with the ſalt.

TACAMAHACCA-TREE. A ſpecies of the poplar.

TACAMAHACCA. A reſin obtained from a tall tree, which grows ſpontaneouſly on the continent of America, and in a ſheltered ſituation bears the winters of our own climate. Two ſorts of this reſin are ſometimes to be met with. The beſt, called (from its being collected in a kind of gourd-ſhells) tacamahacca in ſhells, is ſomewhat unctuous and ſoftiſh, of a pale yellowiſh or greeniſh colour, an aromatic taſte, and a fragrant delightful ſmell, approaching to that of lavender and ambergris. This ſort is very rare: that commonly found in the ſhops is in ſemitranſparent grains or glebes, of a whitiſh, yellowiſh, browniſh, or greeniſh colour, of a leſs grateful ſmell than the foregoing. The firſt is ſaid to exude from the fruit of the tree, the other from inciſions made in the trunk. This reſin is ſaid to be employed among the Indians, externally, for diſcuſſing and maturing tumours, and abating pains and aches of the limbs: it is an ingredient in the anodyne, hyſteric, cephalic, and ſtomachic plaſters of the Edinburgh pharmacopœia. The fragrance of the finer ſort ſufficiently points out its being applicable to other purpoſes.

TALCK. Talcky earth is ſcarcely alterable by a vehement fire. The maſſes of this earth are generally of a fibrous or leafy texture; more or leſs pellucid, bright or glittering; ſmooth and unctuous to the touch; too flexible and elaſtic to be eaſily pulverized; ſoft, ſo as to be cut with a knife. In theſe reſpects ſome of the gypſeous earths greatly reſemble them, but the difference is readily diſcovered by fire; a weak heat reducing the gypſeous to powder, while the ſtrongeſt makes no other alteration in the talcky, than ſomewhat diminiſhing their flexibility, brightneſs, and unctuoſity.

TAMARIND. This tree grows naturally in both Indies, and alſo in Egypt; but it has been ſuppoſed by ſome eminent botaniſts, that the tamarind which grew in the Eaſt-Indies was different from that of the Weſt, becauſe the pods of the firſt are almoſt double the length of thoſe of the latter. The pods which have been brought from the Eaſt-Indies have generally been ſo long as to contain five, ſix, and ſometimes ſeven ſeeds, whereas thoſe of the Weſt-Indies have very rarely more than four; but the plants raiſed from the ſeeds of both ſorts are ſo like as not to be diſtinguiſhed.

This tree grows to a very large ſize in thoſe countries where it is a native, but in England it will not thrive out of a ſtove, eſpecially in winter. The ſtem is very large, covered with a brown bark, and divides into many branches at the top, which ſpread wide every way, and are cloſely garniſhed with winged leaves, compoſed of ſixteen or eighteen pair of lobes, without a ſingle one at the end. The lobes are about half an inch long, and a ſixth part of an inch broad, of a bright green, a little hairy, and ſit cloſe to the midrib. The flowers come out from the ſide of the branches, five, ſix, or more together upon the ſame foot-ſtalk in looſe bunches; theſe are compoſed of five reddiſh petals, one of which

which is reflexed upward like the ſtandard in ſome of the butterfly flowers, two others ſtand on each ſide like the wings, and the other two are turned downwards; theſe (in the countries where the plants grow naturally) are ſucceeded by thick compreſſed pods, two, three, four or five inches long, having a double ſkin or cover, and ſwell in every place where the ſeeds are lodged, full of an acid ſtringy pulp, which ſurrounds ſmooth, compreſſed, angular ſeeds.

The tamarinds which are brought from the Eaſt-Indies are darker and drier, but contain more pulp, being preſerved without ſugar, and are fitter to be put into medicines than thoſe from the Weſt-Indies, which are redder, have leſs pulp, and are preſerved with ſugar, ſo are pleaſanter to the palate.

The pulp of theſe fruits, taken in the quantity of two or three drams, or an ounce or more, proves gently laxative or purgative; and at the ſame time, by its acidity, quenches thirſt, and allays immoderate heat. It increaſes the action of the purgative ſweets, caſſia and manna, and weakens that of the reſinous cathartics. Some have ſuppoſed it capable of abating the virulence of antimonial preparations; but experience ſhews that it has a contrary effect, and that all vegetable acids augment their power. Tamarinds are an ingredient in the electuary of caſia, the lenitive electuary, and decoction of tamarinds with ſena.

The plants are preſerved in the gardens of thoſe who have conveniency to maintain rare exotic-trees and ſhrubs.

They are eaſily propagated by ſowing their ſeeds on a hot-bed in the ſpring; and when the plants are come up, they ſhould be planted each into a ſeparate ſmall pot, filled with light rich earth, and plunged into a hot-bed of tanner's bark to bring them forward, obſerving to water and ſhade them until they have taken root; and as the earth in the pots appear dry, they muſt be watered from time to time, and ſhould have air given to them in proportion to the warmth of the ſeaſon, and the bed in which they are placed. When the pots in which they are planted are filled with their roots, the plants ſhould be ſhifted into pots of a larger ſize, which muſt be filled up with rich light earth, and again plunged into the hot-bed, giving them air as before, according to the warmth of the ſeaſon. In very hot weather the glaſſes ſhould be ſhaded with mats in the heat of the day, otherwiſe the ſun will be too violent for them through the glaſſes, nor will the plants thrive if they are expoſed to the open air, even in the warmeſt ſeaſon; ſo that they muſt be conſtantly kept in the bark-ſtove both ſummer and winter, where if rightly managed, they will grow very faſt.

TAMARISK, [*Tamarix.*] There are two ſpecies of this tree; one with flowers having five ſtamina; the other whoſe flowers have ten ſtamina. The firſt grows naturally in the ſouth of France, in Spain and Italy, where it arrives to a tree of middling ſize; but in England is ſeldom more than fourteen or ſixteen feet high. The other grows naturally in Germany, in moiſt land: it is rather a ſhrub than a tree, having ſeveral ligneous ſtalks ariſing from the ſame root, which grow erect, ſending out many ſide-branches which are alſo erect.

Both theſe ſorts caſt their leaves in autumn, and it is pretty late in the ſpring before the young leaves puſh out, which renders them leſs valuable; they are now frequently planted in gardens for ornament, and when mixed with other ſhrubs, make a pretty variety.

The culture of both ſorts of tamariſk is very eaſy: every cutting will grow that is ſet in winter, and will be a good plant by the autumn following. The cuttings ſhould be of the laſt ſummer's ſhoot; and a moiſt part of the garden is moſt eligible for them to be planted in. In two years they will be good plants for the wilderneſs or ſhrubbery, and may then be planted out in almoſt any ſoil, though they beſt like a light moiſt earth, eſpecially the German ſort; for in countries where it grows naturally, it is generally found in low watery grounds.

The bark and leaves of this tree are moderately aſtringent; they are never met with in preſcription, and have long been entire ſtrangers to the ſhops.

TAME-POISON, [*Vincitoxicum.*] Swallow-wort. This is a native of the warmer climates: it is ſometimes

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met with in our gardens, but rarely perfects its feeds. It is reckoned by botanifts a fpecies of apocynum, or dogſbane; from all the poiſonous ſorts of which it may be diſtinguiſhed, by yielding a limpid juice, whilſt that of the others is milky. The root has a ſtrong ſmell, eſpecially when freſh, approaching to that of valerian, or nard; the taſte is at firſt ſweetiſh and aromatic, but ſoon becomes bitteriſh, ſubacrid, and naufeous. This root is eſteemed ſudorific, diuretic, and emmenagogue, and is frequently employed by the French and German phyſicians as an alexipharmac, ſometimes as a ſuccedaneum to contrayerva, whence it has received the name of contrayerva Germanorum. Among us, it is very rarely made uſe of: it appears from its ſenſible qualities, to be a medicine of much the ſame kind with valerian, which is indiſputably preferable to it.

TAN. The bark of oak, chopped and ground by a tanning mill into a coarſe powder, to be uſed in the tanning or dreſſing of ſkins.

Tan is of great uſe in gardening: firſt, by its fermentation, when laid in a body, which is always moderate and of long duration, which renders it of great ſervice to hot-beds: and ſecondly, after it is well rotted, it becomes excellent manure for all ſorts of cold ſtiff land; upon which one load of tan is better than two of rotten dung, and will continue longer in the ground.

The uſe of tan for hot-beds has not been many years known in England; the firſt hot-beds of this ſort, which were made in England, were at Blackheath, in Kent, about fifty-five years ago: theſe were deſigned for raiſing of orange-tees; but, the uſe of theſe hot-beds being but little known at that time, they were made but by two or three perſons, who had learned the uſe of them in Holland and Flanders, where the gardeners ſeldom make any other hot-beds: but in England there were very few hot-beds made of Tanner's bark, before the ananas were introduced into this country, which was in 1719, ſince which time the uſe of theſe hot-beds have been more general; and are now made in all thoſe gardens where the ananas plants are cultivated, or where there are collections of tender exotic plants preſerved.

Tank. See Stank.

TANSEY, [*Tanacetum.*] The name of a plant often cultivated in kitchen-gardens, and of which there are three varieties, that have all been produced accidentally from the ſeeds of the common tanſey. All the varieties are eaſily propagated by the creeping roots, which, if allowed to remain undiſturbed, will overſpread the ground where they are permitted to grow; ſo that wherever tanſey is planted in a garden, the ſlips ſhould be placed two feet aſunder, and in particular beds, where the paths round them may be often dug, to keep their roots within bounds. They may be tranſplanted either in ſpring or autumn, and will thrive in almoſt any ſoil or ſituation.

Conſidered as a medicine, it is a moderately warm bitter, accompanied with a ſtrong, not very diſagreeable flavour: ſome have had a great opinion of it in hyſteric diſorders, particularly thoſe proceeding from a deficiency, or ſuppreſſion of the uterine purgations. The leaves and ſeeds have been of conſiderable eſteem as anthelmintics: the ſeeds are leſs bitter, and more acrid and aromatic, than thoſe of rue, to which they are reckoned ſimilar: or of ſantonicum, for which they have been frequently ſubſtituted.

Wild TANSEY, [*Potentilla.*] Cinquefoil.

TARES. [*Vicia.*] Vetches. The Tare is a low climbing or drooping plant, reſembling the pea in its manner of growth, but ſmaller. The ſtalks are weak, and lean on the ground. The leaves are each compoſed of ſeveral pairs of ſmaller, of a pale green colour, and there are tendrils for climbing or hanging upon any thing. The flower reſembles that of the pea in ſhape, but is ſmaller, and of a mixed purple colour in the common kinds, tho' of various hues in others. The ſeeds are contained in ſlender pods, and are round and ſmall. The colour varies like that of the flowers.

There are two kinds of Tares, the white and the black. Theſe are named after the colour of the ſeeds, and have little other difference: they properly are only ſeminal varieties of the ſame ſpecies; the white Tare riſing originally from the ſeed of the black, as the common blue and red flowers of many kinds, in our gardens, will occaſionally

caſionally yield ſuch as are white. In the ſame manner the firſt variation in this kind of Tare is, that the flower is white, whereas it is purple in the other and the ſeeds afterwards are of the ſame colour. Either of theſe may be ſown in fields, and they will anſwer the ſame purpoſe; but the common or black Tare is the hardier kind, and the beſt bearer.

There may be a great advantage in the ſowing Tares properly, among the variety of articles with which the preſent practice of huſbandry gives the farmer an opportunity of varying his crop. They excellently prepare the land for corn, and their produce is of a certain and not inconſiderable price, being the proper food of pigeons, and uſeful to many other purpoſes.

Wherever there are pigeons there muſt be Tares raiſed or bought; and this is not their only uſe, for the ſtraw when well dried is an excellent food for cattle. So that upon the whole, the Tare, though greatly inferior to many other articles, is a very profitable, and very uſeful crop at proper ſeaſons; as a very poor land will ſupport it, and it demands little preparation.

It is a hardy product, approaching to the nature of a weed; and it will therefore grow either on land naturally poor or ſuch as is exhauſted: this is what makes the farmer find his principal advantage in its culture: for it not only thus ſtands in the place of barrenneſs, but prepares the ground for better crops.

The moſt favourable land for Tares is a good ſandy loam. They will ſucceed excellently on mellow earth, if not too moiſt for them, which is a very common inconvenience in that ſort of ground, that is not rich in any reſpect; and we ſee great crops of them in the lime-ſtone countries, and that frequently where there is very little depth of ſoil.

The worſt ground for the Tare is a tough wet clayey ſoil. In Hertfordſhire, where a great quantity is raiſed, they find them always ſucceed better on the hilly grounds than in the vales.

Though the field where they are to ſtand has been pretty well exhauſted by the laſt crop of corn, no preparation by manure, or repeated tillage, is wanted: all that is needful is to plough in the ſtubble; and let this lie to rot; and in ſpring to open the ground for the ſeed: theſe kind of crops are ſo far from demanding manure, that they ſerve as manure to the land themſelves; and of them all none more than this ſpecies.

In his choice of the ſeed, the Huſbandman ſhould not be negligent: a little care coſts nothing, and it enſures a profitable crop. Let the ſeed Tares be bought or purchaſed by exchange from ſome farmer, at ten or twelve miles diſtance, and let the farmer who is to ſow them take care to purchaſe ſuch as have grown on a different kind of ſoil from his own.

Thus, if his field be mellow earth, let him chuſe the ſeed Tares from a loamy or ſandy ſoil; and on the contrary, if his be ſandy, let him chuſe the ſeeds from one that is not.

Theſe Tares are in general beſt for ſowing that are of a middling ſize, round, full, and plump, of a ſmooth and bright ſurface, and heavy. There is reaſon the huſbandman be careful in this choice, becauſe few ſeeds are ſo apt to ſpoil; and all pains are thrown away upon land where there is a defect in the ſeed.

In ſowing, five pecks are generally allowed to the acre, but a buſhel is fully ſufficient: three pecks will be very well. The beſt time for ſowing them is in the middle of February. Very little trouble need be taken about them, for the moſt ſlight ſtirring of the ground is ſufficient; but there muſt never be more ſown in a day than can be well covered before evening; for if they lie expoſed to the dews of the night, they contract a damp that decays a great part of them; and the reſt grow poorly.

In general, a poorer is better than a more rich land for Tares. In the former they pod well; in the latter, they are to run into ſtalks and leaf with leſs bearing. There is alſo another misfortune attending the ſowing of Tares on rich ground, eſpecially if it be a little moiſt, which is, they are more apt to lie upon the ground, becauſe of the weight of the ſtalk, and then they rot. There is an old cuſtom among the farmers of Eſſex, and ſome other

other counties, of ſowing tares and horſe-beans together, they thrive tolerably well in this way, but they do better ſingly. There is no difficulty attending the reaping of them, for they may be very well cut together, when ripe, as they will be about the ſame time; and the different ſizes of the bean and tare make them eaſily ſeparated in the barn by a riddle.

There are two ſeaſons of cutting them, the one for the ſtraw, as it is called; that is, for the green plant for the food of cattle, the other for ſeed. The firſt may be continued at different times for ſeveral weeks, and it is a very wholeſome and profitable food; the other is only to be done at one time, that is, when the tares are ripe in the pods; and for the knowing the exact period for this, the tare is to be watched in the ſame manner as the pea.

The cutting them for fodder is often the moſt important ſervice they can be put to; as to the letting them ſtand for ripening, it is for ſeed, or for food for pigeons; and they muſt be left to dry in the field in little heaps, before they are carried home for getting out the ſeed.

The farmer has ſeen how eaſily tares are damaged by wet, the conſequence of which is, their growing mouldy, or muſty: after this they never recover their right condition, look, or value: but, beſide this, there is another accident to which they are very liable, that is, the being infected with worms, mites, and other little vermin. Now in this caſe the pulpy part is eaten, and they become light, duſty, imperfect, and of little value.

The preſervation of tares from both theſe accidents depends principally on the drying of them; for, as it is damp that moulds them, the ſame makes way for thoſe little miſchievous vermin, which are always found in damp tares, but rarely in ſuch as have been properly dried.

If the air be very warm and dry, the ſpreading and turning them on a floor for ſome days will anſwer the purpoſe; if otherwiſe, they ſhould be laid upon a kiln: but, in this caſe, the heat muſt be very gentle, and well moderated, otherwiſe it may do more harm than the damp, deſtroying the vegetative power in the ſeed, and injuring it in its nouriſhing quality.

When the tares are thus properly ordered, they muſt be kept in a dry place, and properly ſecured from vermin. The thorough drying is very eſſential, for otherwiſe they will breed diſorders in the pigeons that are fed with them; and, when uſed as ſeed, not one in ten will grow.

When they are to be kept any long time, the beſt way is to put them up in large barrels; then ſetting them in a dry, cool place, they will be out of all danger whatſoever, and keep good for all purpoſes for many years.

TAR. A thick, black, unctuous ſubſtance; obtained from old pines and fir-trees, by burning them with a cloſe ſmothering heat. It differs from the native reſinous juice of the trees in having received a diſagreeable impreſſion from the fire, and containing a portion of the ſaline and other juices united with the reſinous and oily; by the mediation of theſe, a part of the terebinthinate oil proves diſſoluble in aqueous liquors, which extract little or nothing from the purer turpentines. Water impregnated with the more ſoluble parts of tar proves, in conſequence of this hot pungent oil, warm and ſtimulating: it ſenſibly raiſes the pulſe, and quickens the circulation: by theſe qualities, in cold languid phlegmatic habits, it ſtrengthens the ſolids, attenuates viſcid juices, opens obſtructions of the minuter veſſels, and promotes perſpiration and the fluid ſecretions in general; whilſt in hot bilious temperaments, it diſpoſes to inflammation, and aggravates the complaints which it has been employed to remove.

TAR PILLS. Take any quantity of tar, and mix with it as much powdered elecampane root as will reduce it to a proper thickneſs for being formed into pills.

The powder here mixed with the tar, though of no great virtue, is nevertheleſs a very uſeful addition, not only for procuring it a due conſiſtence for taking, but likewiſe as it divides the reſinous texture of the tar, and thus contributes to promote its ſolution by the animal juices. In the Edinburgh infirmary, half a drachm of the maſs, made into middle-ſized pills, is given every morning and evening, in diſorders of the breaſt, ſcurvies, &c.

TAR WATER. Take of tar, two pounds; water, one gallon. Stir them ſtrongly together with a wooden rod; and after ſtanding to ſettle for two days, pour off the water for uſe.

Tar water has lately been recommended to the world as a certain and ſafe medicine in almoſt all diſeaſes; a ſlow yet effectual alterative in cachexies, ſcurvies, chlorotic, hyſterical, hypochondriacal, and other chronical complaints; and a ſudden remedy in acute diſtempers which demand immediate relief, as pleuriſies, peripneumonies, the ſmall-pox, and all kinds of fevers in general. The medicine, though certainly far inferior to the character that has been given of it, is doubtleſs in many caſes of conſiderable utility: it ſenſibly raiſes the pulſe, and occaſions ſome conſiderable evacuation, generally by perſpiration or urine, though ſometimes by ſtool or vomit: hence it is ſuppoſed to act by increaſing the vis vitæ, and enabling nature to expel the morbific humours.

We ſhall here inſert, from the firſt public recommender of this liquor (Biſhop Berkeley) ſome obſervations on the manner of uſing it:—

"Tar water, when right, is not paler than French, nor deeper-coloured than Spaniſh white-wine, and full as clear; if there be not a ſpirit very ſenſibly perceived in drinking, you may conclude the tar water is not good. It may be drank either cold or warm: In cholics, I take it to be beſt warm. As to the quantity, in common chronical indiſpoſitions, a pint a day may ſuffice, taken on an empty ſtomach, at two or four times, to wit, night and morning, and about two hours after dinner and breakfaſt; more may be taken by ſtrong ſtomachs. But thoſe who labour under great and inveterate maladies, muſt drink a greater quantity, at leaſt a quart every twenty-four hours: all of this claſs muſt have much patience and perſeverance in the uſe of this, as well as of all other medicines, which, though ſure, muſt yet in the nature of things be ſlow in the cure of inveterate chronical diſorders. In acute caſes, fevers of all kinds, it muſt be drank in bed, warm, and in great quantity (the fever ſtill enabling the patient to drink) perhaps a pint every hour, which I have known to work ſurprizing cures. But it works ſo quick, and gives ſuch ſpirits, that the patients often think themſelves cured before the fever hath quite left them."

TARRAGON. The name of a ſpicy plant, often cultivated in kitchen gardens.

It is propagated by ſeeds, ſlips, or cuttings. March or April is the proper time for ſetting them, and they may be tranſplanted again in the ſummer. The plants ſhould ſtand at leaſt a foot aſunder every way, and they ſhould be kept clean from weeds. They will endure great cold; and even extraordinary drought will not hurt them, if they are but a little watered, or if the earth about them is kept looſe and well ſtirred. A very few of their leaves mixed with a ſallad, particularly of lettuces, give it a high aromatic flavour. The tendereſt and freſheſt are the beſt for this purpoſe.

TARTAR, [*Tartarum.*] Tartar is a ſaline ſubſtance, thrown off from wines, after fermentation, to the ſides and bottom of the caſk: it proves of a red or white colour, and more or leſs foul or droſſy, according to the colour and quality of the wine; the white is generally looked upon as the pureſt: of either ſort, ſuch as is clean, ſolid, ſomewhat tranſparent, and has its outſide covered over with ſmall ſhining chryſtals, is preferable to ſuch as appears porous, droſſy, opake, and leſs bright. This ſubſtance, though truly ſaline, is ſcarce acted upon by cold water; the pureſt ſort, or ſuch as has been purified by art, requires twenty-four times its weight of boiling water to diſſolve in: the ſolutions of both the tartars paſs the filter colourleſs, and ſhoot, in the cold, into ſmall, white, ſemitranſparent chryſtals. All ſuch earths as are ſoluble in vinegar, and alkaline ſalts, render tartar more eaſily ſoluble in water; hence the refiners at Montpellier are ſaid to employ a certain earth for promoting its ſolutions with ſome particular managements for making it ſhoot into large chryſtals. This addition may occaſion a conſiderable alteration in the ſalt, inſomuch that the finer ſorts of white tartar are perhaps preferable on many occaſions to the common chryſtals. The virtues of tartar are thoſe of a mild, cooling,

cooling, aperient, laxative medicine. Taken from half an ounce to an ounce, it proves a gentle, though an effectual purgative.

TEA, [*Thea.*] The leaves of a shrub cultivated in China.

The several sorts of tea met with among us, are the leaves of the same plant, collected at different times, and cured in a somewhat different manner: the small young leaves very carefully dried, are the finer green: the older afford the ordinary green and bohea. The two first have a sensible flavour of violets; the other of roses: the former is the natural odour of the plant; the latter, as Neumann observes, is probably introduced by art. Some of the dealers in this commodity in Europe, are not ignorant that bohea tea is imitable by the leaves of certain common plants, artificially tinctured and impregnated with the rose flavour. The taste of both sorts is lightly bitterish, subastringent, and somewhat aromatic. The medical virtues attributed to these leaves are sufficiently numerous, though few of them have any just foundation: little more can be expected from the common infusions, than that of a diluent, acceptable to the stomach: the diuretic, diaphoretic, and other virtues which they have been celebrated for, depend more on the quantity of warm fluid, than any particular qualities which it gains from the tea. Nothing arises in distillation from either sort of tea with rectified spirit; water elevates the whole of their flavour.

South-Sea TEA. Cassioberry.

TEAZLE, [*Dipsacus.*] The Fuller's Teazle is the only kind cultivated for use. Teazle is not one of those universal commodities for which there is every where a market. It may be raised in any place, and it is of cumbersome carriage; therefore he must be very imprudent, who sets about to cultivate it at a distance from the parts of the kingdom where it is used, because nothing need prevent those from doing it who are upon the spot; but to such as are, it proves on many occasions a very profitable growth.

The teazle is propagated by sowing the seeds in March, upon a dry soil. About one peck of the seed will sow an acre, for the plants should have room to grow; otherwise the heads will no be so large, nor in so great quantity. When the plants are come up, you must hoe them in the same manner as is practised for turneps, cutting down all the weeds, and singling out the plants to about six or eight inches distance; and as the plants advance, and the weeds grow again, you must hoe them a second time, cutting out the plants to a wider distance; for they should be at last left a foot asunder; and you should be particularly careful to clear them from weeds, especially the first summer; for when the plants have spread so as to cover the surface of the ground, the weeds will not so readily grow between them. The second year after sowing, the plants will shoot up heads, which will be fit to cut about the beginning of August; at which time they should be cut and tied up in bunches, setting them in the sun, if the weather be fair; but if not, they must be set in rooms to dry. The common produce is about 160 bundles or staves upon an acre, and they will sell for about one shilling a stave.

TEAM. A number of horses or oxen drawing at once.

To TEAM. To pour or lade out of one vessel into another.

To TED. To spread abroad new-mown grass, which is the first thing done in order to its being dried, and made into hay.

TEDDER *or* TETHER. A rope with which a horse is tied in the field, that he may not pasture too wide.

To TEEM. To be pregnant; to engender young.

TENDRIL. The clasper of a vine, or other climbing plant.

TENEMENT. Any thing held by a tenant, as a house, &c.

TENURE. The manner in which tenants hold their lands, &c. of their lord.

THATCH. Straw laid on the top of a building, rick, &c. to keep out the weather.

THEAVE. An ewe of the first year.

THETCHES. *See* VETCHES.

THICKET. A close knot or tuft of trees; a close wood.

THILL-HORSE. The last horse in a team; the horse that goes between the thills or shafts.

THISTLE, [*Carduus.*] A prickly weed, growing among corn, &c.

The

The following obſervations on thiſtles is ſelected from the papers of the Bath Agriculture Society :—

"*Some obſervations on Thiſtles as injurious in agriculture, more particularly the Seratula Arvenſis of Linnæus.* By William Curtis, *Author of the Flora Londinenſis.*

"Gentlemen,

"While ſome of your correſpondents are laudably engaged in enriching agriculture, by diſcovering and promoting the cultivation of new plants, permit one whom you have been pleaſed to elect an honorary member of your Society, to lay before you a few obſervations on ſome of the plants which are more particularly noxious to the farmer. Should they be conſidered as contributing to advance even in the ſmalleſt degree the deſign of your inſtitution, he may be again excited to trouble you on other ſubjects, as information may ariſe from a cultivation of moſt of the Britiſh plants on a ſmall ſcale.

"There are no plants over which the œconomical farmer ought to keep a more watchful eye than the thiſtle tribe. He is ſenſible that they are not only uſeleſs, as reſiſting the bite of moſt animals, the hardy aſs excepted, but that they occupy much ground; and being furniſhed with downy ſeeds, are capable of being multiplied to almoſt any diſtance. Hence in many parts of the kingdom, the farmers whoſe lands are contiguous unite in preventing the increaſe, by cutting them down before they ſeed; but this operation, though deſtructive to ſome ſpecies, will only palliate the bad effects of others.

"To be acquainted with the qualities of each kind, we muſt obſerve them with much attention, and view them in a botanical and philoſophical light: this alone will enable us to judge with certainty how far and by what means their deſtruction may be effected.

"The Engliſh thiſtles meriting notice, as more or leſs noxious, are,

1. Carduus Lanceolatus, or *Spear Thiſtle*
2. Carduus Nutans, — *Muſk Thiſtle*
3. Carduus Paluſtris, — *Marſh Thiſtle*
4. Carduus Marianus, — *Milk Thiſtle*
5. Carduus Acanthoides, *Welted Thiſtle*
6. Carduus Criſpus, — *Curled Thiſtle*
7. Onoperdum Acanthium *Cotton Thiſtle*
8. Seratula Arvenſis, — *Curſed Thiſtle*

"The *Spear Thiſtle* is a large ſtrong plant, about four feet high, the extremity of each leaf running out into a long point; its heads are large, and it grows very commonly by the ſides of roads, near dunghills, and not unfrequently in fields and paſtures.

"The *Muſk Thiſtle* grows to the height of two or three feet, the heads hang down, and the flowers ſmell ſomewhat like muſk; it is often found occupying whole fields, particularly on chalky or barren land.

The *Marſh Thiſtle* is very tall and prickly; its heads are numerous, ſmall, and of a red colour; it grows abundantly in wet meadows, alſo in woods.

"The *Milk Thiſtle* has very large leaves, which are moſt commonly beautifully marbled with white. Near London it appears frequently on banks by road ſides; in which ſituation we alſo meet with the *Curled* and *Welted Thiſtles*. Theſe three ſeldom intrude into fields or paſtures.

The *Cotton Thiſtle* is diſtinguiſhed by its ſize, (being perhaps the largeſt of the Britiſh herbaceous plants) and its white woolly leaves. It grows in the ſame ſituation as the three laſt-mentioned.

"The *Curſed Thiſtle* is more general in its growth than any of the others, being found not only by the ſides of roads univerſally, but alſo in arable land, and is not uncommon in meadows, even in ſuch as are yearly mown. It is remarkably prickly, grows about three feet high; its heads are ſmall, the flowers purple, and frequently white. The ſcales of the heads are ſmooth, and may in a particular manner be diſtinguiſhed from all the others before mentioned, by having a perennial root about the ſize of a gooſe-quill, which runs deep into the earth, and afterwards creeps along horizontally.

"Of theſe thiſtles, all except the laſt are either annual or biennial; that is, remain in the ground not more than one or two years, unleſs renewed by ſeed. The laſt, having a perennial root, continues in the earth, increaſing, and throwing up new ſhoots every year.

"Hence it will appear obvious, that if the firſt ſeven ſpecies of thiſtles are cut down before they perfect their ſeed, the ground will be entirely cleared of them; and that the laſt-mentioned

can no otherwiſe be deſtroyed, than by rooting it out, a proceſs which the following experiments will ſorrowfully convince the rural œconomiſt to be impracticable in large fields, and ſcarce to be performed even in an incloſed garden.

"Experiment 1. *To aſcertain the effects of mowing the Seratula Arvenſis.*

"The Hon. Daines Barrington, who is ever anxious to promote uſeful enquiries, deſired me to try whether this kind of thiſtle could not be deſtroyed by mowing. A ſmall patch of them, about two feet ſquare, was accordingly planted in a good garden, in the year 1777. In the courſe of the ſummer they were mown three ſeveral times, but without any other good effect than that of preventing their ſeeding; for inſtead of being deſtroyed, the next ſpring they came up extremely vigorous, not only on the bed where they were firſt planted, but all around it to the diſtance of ſix feet.

"Experiment 2. *To aſcertain the annual increaſe of the root of the Seratula Arvenſis.*

"April 1, 1778, I planted in a garden a piece of the root of this thiſtle, about the ſize of a gooſe-quill, and two inches long, with a ſmall head of leaves, cut off the main-root, juſt as it was ſpringing out of the ground. By the 2d of November 1778, this ſmall root had thrown out ſhoots, ſeveral of which had extended themſelves to the diſtance of eight feet; ſome had even thrown up leaves ſix feet from the original root. Moſt of theſe ſhoots which had thus far extended themſelves were about ſix inches under ground—others had penetrated to the depth of two feet and a half; the whole together, when dug up and waſhed from the earth, weighed four pounds.

"In the ſpring of 1779, contrary to my expectation, this thiſtle again made its appearance on and about the ſpot where the ſmall piece was originally planted. There were between fifty and ſixty young heads, which muſt have ſprung from thoſe roots, which had penetrated deeper than the gardener was aware of, although he was particularly careful in extracting them.

"From theſe experiments it appears deducible, that no plants are more eaſily deſtroyed than the generality of thiſtles, or with more difficulty than this one; there being no ſoil, however poor, in which it will not vegetate, nor earth ſo ſtiff but it will penetrate; in proportion, however, as the ſoil is rich, will be its increaſe.

"It were much to be wiſhed, that an inveſtigation of this evil had afforded a remedy; at preſent, none appears. It is, therefore, to be feared, that ſpudding, or cutting them down cloſe to the ground, once or twice in the ſpring, is the only operation the farmer can perform to prevent their bad effects in deſtroying his crops on arable land, and rendering his paſtures unſeemly.

"As nature in the preſervation of this plant ſeems to have exerted her greateſt powers, it is poſſible that in ſome future period, uſes may be diſcovered to which it has not yet been applied.

"To the aſs it is the higheſt treat; and I have been credibly informed, that in ſome parts of Scotland, it is cut down as food for horſes.

"It would be well, if a plant ſo noxious in ſome reſpects could be rendered beneficial in others.

"I am, &c. WM. CURTIS."

Bleſſed THISTLE. See CARDUUS BENEDICTUS.

Carline THISTLE. See CARLINE THISTLE.

Diſtaff THISTLE. See DISTAFF THISTLE.

Fuller's THISTLE. See TEAZLE.

Globe THISTLE. See GLOBE THISTLE.

Melon or *Thorn* THISTLE. See MELON THISTLE.

Melancholy THISTLE. See MELANCHOLY THISTLE.

THISTLING. The action of cutting or pulling up thiſtles.

Thorn APPLE. See THORN APPLE.

Black THORN. The Sloe tree.

Box THORN. See BOX THORN.

Chriſt's THORN. See CHRIST'S THORN.

Cockſpur THORN. Service.

Egyptian THORN. Acacia.

Evergreen THORN. See EVERGREEN THORN.

Glaſtonbury THORN. See GLASTONBURY THORN.

Gout's

Goat's THORN. See TRAGACANTH.

Haw THORN. See HAWTHORN.

Purging THORN. See BUCKTHORN.

White THORN. See HAWTHORN.

THOROUGH WAX. Hare's ear.

THREE-LEAVED GRASS. Trefoil, Clover.

THRASHING. The action of getting the corn out of the straw.

THRASHING *Floor*. The floor on which the corn is thrashed.

THRAVE. A shock of corn, consisting of twenty-four sheaves.

THREAF. A handful, a bundle.

THRIFT, [*Statice.*] There are two or three kinds of this herb, natives of the Alps and salt-marshes of many parts of England; some years ago it was much esteemed for borders, but at present it is not much regarded. It may be propagated by parting the roots in autumn.

THROATWORT, [*Trachelium.*] This plant will grow on old walls, and is easily propagated by throwing the seeds on old walls where there is the least earth to hold them.

THYME, [*Thymus.*] A well-known aromatic plant propagated in kitchen gardens.

Botanists enumerate nine different species of thyme, besides several varieties; but they are all propagated either by seeds or parting the roots.

The most useful sort, either for culinary purposes, or for medicine, is the broad-leaved thyme, most commonly cultivated in the kitchen-garden; for the narrow-leaved kind never grow so large. Their culture is, however, exactly the same.

The seeds of thyme, if it be raised from thence, should be sown either in March or October, but the former of these months is best, in a well-dug bed of light earth: taking care, as they are very small, not to drop them too close together, nor to bury them deep, for this last would make them rot. When the plants are come up, they should be carefully over-looked and cleared from weeds, and if the season be dry, their growth will be greatly promoted by watering them twice a week, for some time. In June, if it be a spring sowing, the plants should be thinned to the distance of six inches asunder every way, that they may have room to spread: and those which are drawn out may be set in other beds, at the same distance from each other. They must be watered till they have taken root, and will then require no farther care, except weeding them, till the winter, when they may be pulled up, and laid by in a dry place, for use. The autumnal sowing should be thinned as before, early the next spring, if it be let stand till then; for there will be little danger of its resisting the severest winter of this country, especially if the plants grow on a dry, poor, and stony land. In rich ground, indeed, where they grow luxuriantly, they are sometimes destroyed by severe frosts. Thyme will even flourish upon a stone wall.

If the plants are propagated by parting their roots, this should also be done in March or October. The old plants should be taken up, their roots should be slipt into as many parts as can be, and these slips should be set six or eight inches asunder every way, in beds of fresh light earth. If the season be dry, they must be watered there till they have taken root; and with only one weeding of them afterwards, they will soon be fit for use.

To save the seeds of thyme, some of the plants should be left unremoved till the next spring. They will then flower in June, and their seeds will ripen in July. These must be pulled up and beaten out as soon as they are ripe, for the first shower of rain would otherwise wash them all out of their husks.

Thyme is so great an impoverisher of the earth, that no crop will thrive well where that stood the year before, unless the ground be trenched deeper than the thyme rooted, and at the same time enriched with dung, or some other suitable manure.

Lemon THYME. A variety of the common thyme.

Mother of THYME, [*Serpillum.*] A species of thyme growing wild on heaths.

TICHING. Setting up turfs in such a manner as they may be dried by the sun, and fit for being burnt for their ashes upon the land.

TIKE. An insect found in dogs, sheep, cows, &c.

TILLABLE. Arable, fit for the plough.

TILLAGE.

TILLAGE. The act or practice of tilling, or cultivating land.

TILLER. A branch of corn.

To TILLER. To spread or shoot out.

TILLS. Tares or vetches.

TILTH. The condition of the earth after ploughing, &c.

TIMOTHY-GRASS. The name of a grass now cultivated in England, of which it is a native, though the seeds of it were carried from Virginia, by one Mr. Timothy Hanson, to North Carolina, where it is now cultivated by the inhabitants; and from this circumstance it received the name it now bears.

It thrives most in low, damp, marshy grounds; for in such soil and situation it will produce a fine turf in three weeks from the time of sowing the seed. It is very luxuriant, grows to a considerable height, and has in some sort the appearance of wheat or rye, having a broad blade or leaf.

All sorts of cattle are very fond of this herb whilst in a green growing state; and it will not be improper to add, that they are nearly, if not quite, as fond of it, when dried and made into hay; but when it is intended for this use, it should always be mown when it is in full lap, just before it flowers, for if it is left longer before it is cut, being so luxuriant and quick a grower, it becomes harsh, and is much dryer and more chirky food, than when it is cut in its prime.

TINE. A tooth or spike. And hence the common phrase of giving two or three tinings, signifies to draw the harrows twice or thrice over the same spot of ground.

TIT. A small horse.

TOAD-FLAX. See TOAD-FLAX.

TOBACCO, [*Nicotiana.*] There are many species of this plant, but they are in general supposed too tender to grow from seeds in the full ground, to any degree of perfection in this country, so require to be raised in a hot-bed, after the following manner:

The seeds must be sown upon a moderate hot-bed in March, and when the plants are come up fit to remove, they should be transplanted into a new hot-bed of a moderate warmth, about four inches asunder each way, observing to water and shade them until they have taken root; after which you must let them have air in proportion to the warmth of the season, otherwise they will draw up very weak, and be thereby less capable of enduring the open air: you must also observe to water them frequently, but while they are very young it should not be given them in too great quantities; though when they are pretty strong, they will require to have it often, and in plenty.

In this bed the plants should remain until the beginning of May, by which time (if they have succeeded well) they will touch each other, therefore they should be inured to bear the open air gradually; after which they must be taken up carefully, preserving a large ball of earth to each root, and planted into a rich light soil, in rows four feet asunder, and the plants three feet distance in the rows, observing to water them until they have taken root; after which they will require no farther care, but only to keep them clear from weeds, until the plants begin to shew their flower-stems; at which time you should cut off the tops of them, that their leaves may be better nourished, whereby they will be rendered larger, and of a thicker substance. In August they will be full grown, when they should be cut for use; for if they are permitted to stand longer, their under leaves will begin to decay. This is to be understood for such plants as are propagated for use, but those plants which are designed for ornament should be planted in the borders of the pleasure-garden, and permitted to grow their full height, where they will continue flowering from July till the frost puts a stop to them.

TOLU. See BALSAM OF TOLU.

TOOTH-PICK. See SPANISH TOOTH-PICK.

TOOTHWORT, [*Dentaria.*] There are three species, the five-leaved, the seven-leaved, and the three-leaved. The second sort is found growing naturally in some parts of England, the others are natives of the mountains of Italy and Austria. They are cultivated by seeds, or by parting the roots in October.

TORMENTIL, [*Tormentilla.*] The species are, 1. Tormentil with an erect stalk. 2. Creeping Tormentil.

The first sort grows wild on dry pastures and commons in most parts of England,

England, so is never cultivated in gardens; this is so commonly known as to need no description. The roots of this plant have been frequently used for tanning of leather, in places where oak-bark is scarce. This root is also much used in medicine, and is accounted the best astringent in the whole vegetable kingdom.

The second sort is found in some particular places of England growing wild, but particularly in Oxfordshire. The stalks of this sort spread on the ground, and emit roots from their joints, whereby they propagate very fast: this is rarely preserved, unless in some botanic gardens for the sake of variety. It requires no care to propagate these plants, since, if their roots are once planted in almost any soil or situation, the plants will flourish without any other care but to prevent their being over-run with great weeds.

TORE. Rowen, rowet, or winter grass.

TOSET *or* TOVET. Half a bushel.

TOUCH ME NOT. Yellow balsamine. See BALSAMINE.

TOWER MUSTARD, [*Turritis.*] This plant is kept in botanic gardens for variety, and is easily propagated by sowing the seeds on old walls in autumn.

Ladies TRACES. Dogstones.

TRAMEL. An instrument or device, made sometimes of leather, but more usually of ropes, fitted to a horse's legs, to regulate his motion, and teach him to amble. *See Amble.*

Tramel also signifies an iron instrument hanging in the chimney, whereon to hang pots or kettles over the fire.

TRANSPLANTING. The act of removing trees or plants from the places where they are sowed, or raised, and planting them in others.

TRAGACANTH, [*Tragacantha.*] There are four species of this plant, natives of Italy, Spain, and the islands of the Archipelago. These plants may be propagated by seeds, when they can be procured from the countries where the plants grow naturally, which should be sown on a bed of fresh earth in April; and when the plants come up, they should be carefully kept clean from weeds. They may also be propagated by slips; the most proper time for which is April.

See Astragalus.

The gum tragacanth of the shops is the produce of this shrub.

TRAVELLER's JOY. Climbers.

TREE. The first and largest of the vegetable kind, consisting of a single trunk, out of which spring forth branches and leaves. *See Planting.*

Standard trees are such as naturally rise to a great height and are not topt. For the choice of trees of this kind, kind, to be transplanted out of a nursery, Quintinye recommends us to such as are strait, six feet high at least, and five or six inches thick at bottom, and three or four at top; the bark pretty smooth and shining, ass a token of their youth, and the good soil they grew in.

Dwarf trees are such as are kept low, and never suffered to have above half a foot or stem.

TREE GERMANDER. See TREE GERMANDER.

Tree of Life. See ARBOR VITÆ.

TREFOIL. See CLOVER. *See Trifolium.*

Bean TREFOIL. See BEAN Trefoil.

Bird's-Foot TREFOIL. See BIRD's-FOOT Trefoil.

Marsh TREFOIL. Buckbean.

Moon TREFOIL. Lucern.

Shrub TREFOIL, [*Ptelea.*] This plant is a native of North America, and rises with an upright stem to the height of twelve or fourteen feet; there is another species, a native of the West-India islands. They are both propagated by seeds; the latter requires the assistance of a stove in winter.

Snail TREFOIL. See BASTARD MEDICA.

TREACLE MUSTARD. See *Treacle* MUSTARD.

TRELLISES. A contrivance for supporting the branches of fruit trees, consisting of laths of wood crossing each other in the form of a lattice.

Some persons who are very curious in their fruit, and who do not mind a little extraordinary expence, erect trellises against their walls, extending from the inside of one pier to the nearest inside of the next; where the walls are built with piers, as they must be for this purpose. This framework is constructed in the same manner as that for espaliers, like which it need not be set up till the trees are well spread, and begin to bear fruit plentifully; for they may be trained till then against any ordinary low espalier

lier of aſh-poles or other ſlender ſticks, in order not needleſsly to expoſe the trelliſes to the injuries of the weather; becauſe theſe, being generally made of regularly cut yellow-deal, or oak, and run up higher, coſt more. Every fourth upright rail or poſt of the trellis ſhould be much ſtronger than the reſt, and faſtened to the wall with iron hooks, which it is beſt to fix in the wall at the time of building it. Theſe ſtrongeſt upright poſts ſhould be about three, but by no means more than four feet from each other. The croſs rails may be ſlight, as for common eſpaliers, but they muſt be laid much cloſer together. For peach, nectarine, and apricot trees, for example, which, for the moſt part, produce their fruit on the young wood, the ſquares of the trellis frame ſhould not exceed three or four inches; but for trees which continue to bear on the old wood, they may be five or ſix inches wide, and for vines, eight or nine inches. The ſhoots of the trees are faſtened to this frame with oſier twigs, rope yarn, or any other ſoft bandage, in the ſame manner as they are to eſpaliers: for they muſt not be nailed to either, becauſe that would injure the wood-work.

Theſe trelliſes, which ſhould project about two inches from the wall, are thought to contribute greatly to preſerve the beauty of the fruit, by preventing its lying too cloſe to the wall, whilſt it has at the ſame time all the advantages of the heat reflected therefrom: nor are the walls where theſe are uſed hurt by driving nails into their joints, and drawing them out again every year, at the hazard of pulling out ſome of the mortar with them, and conſequently of weakening the wall, and making holes in which ſnails and other vermin take ſhelter and breed.

TRENCH. A furrow cut in the earth for draining land.

TRENDLE. Any thing that turns round.

To TREFALLOW. To plough land the third time before ſowing.

TROUGH. A long veſſel for holding water, &c.

TRUG *or* TRUGG. A hod for mortar.

TRUNDLE. A ſort of carriage with low wheels, for carrying heavy and cumberſome loads.

TRUNK. The ſtem or body of a tree; or the part between the ground and the place where it divides into branches.

TRUSS. A bundle of hay, ſtraw, &c. A truſs of hay muſt contain 56 pounds, or half a hundred weight; 36 truſſes make a load. In June, July, and Auguſt, a truſs of new hay muſt weigh 60 pounds.

TRUSS *of Flowers*. Signifies many flowers growing together on the head of a ſtalk, as in the cowſlip, auricula, &c. &c.

TRUELOVE. One berry.

TRUMPET FLOWER. Scarlet Jaſmine.

TRUMPET *Honeyſuckle*. See HONEYSUCKLE.

TUBEROSE, [*Polianthes*.] The varieties of this plant are the tuberoſe with a double flower, the ſtriped-leaved tuberoſe, and the tuberoſe with a ſmaller flower; the laſt is mentioned by ſeveral authors as a diſtinct ſpecies, but is certainly a variety.

This ſort is frequent in the ſouth of France, from whence the roots have been often brought to England early in the ſpring, before thoſe roots have arrived from Italy which are annually imported; the ſtalks of this are weaker, and do not riſe ſo high, and the flowers are ſmaller than thoſe of the common tuberroſe, but in other reſpects is the ſame.

The tuberoſe grows naturally in India, from whence it was firſt brought to Europe, where it now thrives in the warmer parts, as well as in its native ſoil. The Genoeſe are the people who cultivate this plant, to furniſh all the other countries where the roots cannot be propagated without great trouble and care, and from thence the roots are annually ſent to England, Holland, and Germany. In moſt parts of Italy, Sicily, and Spain, the roots thrive and propagate without care, where they are once planted.

This plant has been long cultivated in the Engliſh gardens, for the exceeding beauty and fragrancy of its flowers; the roots of this are annually brought from Genoa, by the perſons who import orange-trees; for as theſe roots are too tender to thrive in the full ground in England, ſo there are few perſons who care to take the trou-

ble

ble of nurſing up their offſets till they become blowing roots, becauſe it will be two or three years before they arrive to a proper ſize for producing flowers; and as they muſt be protected from the froſt in winter, the trouble and expence of covers is greater than the roots are worth, for they are generally ſold pretty reaſonable by thoſe who import them from Italy.

TUBULATED FLOWERS. A term uſed to expreſs thoſe ſmaller flowers, a great number of which go to compoſe one large compound flower. Theſe are called tubulated in diſtinction from another kind of them, which are from their ſhape called ligulated. The tubulated floſcules generally compoſe the diſk, and the ligulated ones the radius of the compound flowers. The tubulated ones are formed into a hollow cylinder, which expands into a mouth at the top, and is divided into five equal ſegments, which ſtand expanded, and in ſome meaſure bent backwards.

TULIP, [*Tulipa.*] The diſtinct ſpecies are two, 1. The tulip with a nodding flower, or Italian tulip. 2. The tulip with an erect flower. But the varieties are innumerable. The properties of a good tulip as diſtinguiſhed by Miller, are, 1. It ſhould have tall ſtrong ſtem. 2. The flower ſhould conſiſt of ſix leaves, three within, and three without; the former ought to be larger than the latter. 3. Their bottom ſhould be proportioned to their top, and their upper part ſhould be rounded off, and not terminate in a point. 4. Theſe leaves, when opened, ſhould neither turn inward, nor bend outward, but rather ſtand erect, and the flower ſhould be of a middling ſize, neither over large, nor too ſmall. 5. The ſtripes ſhould be ſmall and regular, ariſing from the bottom of the flower, for if there are any remains of the former ſelf-coloured bottom, the flower is in danger of loſing its ſtripes again. The chives ſhould not be yellow, but of a brown colour. When a flower has all theſe properties, it is eſteemed a good one.

Tulips are generally divided into three claſſes, according to their ſeaſons of flowering; as præcoces, or early blowers, medias, or middling blowers, and ſerotines, or late blowers; but there is no occaſion for making any more diſtinctions than two, viz. early and late flowers.

The early-blowing tulips are not near ſo fair, nor riſe half ſo high, as the late ones, but are chiefly valued for appearing ſo early in the ſpring; ſome of which will flower the middle of March in mild ſeaſons, if planted in a warm border near a wall, pale, hedge, or other ſhelter, and a month after the others will ſucceed them; ſo that they keep flowering until the general ſeaſon for the late flowers to blow, which is toward the end of April.

The roots of the early-blowing tulips ſhould be planted the beginning of September in a warm border, near a wall, pale, or hedge, becauſe if they are put into an open ſpot of ground, their buds are in danger of ſuffering by morning froſts in the ſpring. The ſoil for theſe ſhould be renewed every year, where people intend to have them fair. The beſt ſoil for this purpoſe is that which is taken from a light loamy paſture, with the turf rotted amongſt it; and to this ſhould be added a fourth part of ſea-ſand. This mixture may be laid about eighteen inches deep, which will be ſufficient; for theſe need not be planted more than four or five inches deep at moſt. The offſets ſhould not be planted amongſt the blowing roots, but in a border by themſelves, where they may be planted pretty cloſe together, eſpecially if they are ſmall; but theſe ſhould be taken up when their leaves decay, in the ſame manner as the blowing roots, otherwiſe they would rot; for theſe are not ſo hardy as the late blowers, nor do they increaſe half ſo faſt as thoſe, ſo that a greater care is required to preſerve the offſets of them.

When the tulips come up in the ſpring, the earth upon the ſurface of the borders ſhould be gently ſtirred and cleared from weeds; and as the buds appear, if the ſeaſon ſhould prove ſevere, it will be of great ſervice to cover them with mats, for want of which many times they are blighted, and their flower-buds decay before they blow, which is often injurious to the roots, as is alſo the cropping of the flowers, ſo ſoon as they are blown, becauſe their roots, which are formed new every year, are not at that time arrived to

their full magnitude, and are hereby deprived of proper nourishment.

If, when these flowers are blown, the season should prove very warm, it will be proper to shade them with mats, &c. in the heat of the day; as also if the nights are frosty, they should be in like manner covered, whereby they may be preserved a long time in beauty; but, when their flowers are decayed, and their seed-vessels begin to swell, they should be broken off just at the top of the stalks, because if they are permitted to seed, it will injure the roots.

When the leaves of these flowers are decayed (which will be before the late blowers are out of flower,) their roots should be taken up, and spread upon mats in a shady place to dry; after which they should be cleared from their filth, and put up in a dry place, where vermin cannot come to them, until the season for planting them again, being very careful to preserve every sort separate, that you may know how to dispose of them at the time for planting them again, because it is the better way to plant all the roots of each sort together and not to intermix them, as is commonly practised in most other kinds of flowers; for as there are few of them which blow at the same time, so, when the several roots of one sort are scattered through a whole border, they make but an indifferent appearance; whereas, when twenty or thirty roots of the same sort are placed together, they will all flower at the same time, and have a better effect.

When the flowers are faded, the heads of all the fine sorts should be broken off to prevent their seeding; for if this be not observed, they will not flower near so well the following year, nor will their stripes continue so perfect; this will also cause their stems to decay sooner than otherwise they would do, so that their roots may be taken up in June; for they should not remain in the [illegible] after their leaves are decayed. In taking the roots out of the ground you must be very careful not to bruise [illegible]

upon mats in a shady place to dry; after which they should be put up in a dry place, where vermin cannot get to them, observing to keep every sort separated; but they should not be kept too close from the air, nor suffered to lie in heaps together, lest they should grow mouldy, for if any of the roots once take the mould, they commonly rot when they are planted again.

The offsets of these roots, which are not large enough to produce flowers the succeeding year, should be also put by themselves, keeping each sort distinct; these should be planted about a month earlier in autumn than the blowing roots, in particular beds by themselves in the flower nursery, where they may not be exposed to public view; but the earth of the beds should be prepared for them in the same manner as for larger roots; these should not be planted above five inches deep, because they are not strong enough to push through so great covering of the earth as the old roots; they may also be placed much nearer together than those which are to flower, and in one year most of them will become strong enough to flower, when they may be removed into the flower-garden, and placed in the beds amongst those of the same kinds.

African TULIP. Bloodflower.

TULIP TREE, [*Tulipifera.*] The tulip-tree is a native of North-America; it is a tree of the first magnitude, and is generally known through all the English settlements by the title of poplar. Of late years there have been great numbers of these trees raised from seeds in the English gardens, so that now they are become common in the nurseries about London; and there are many of them in several parts of England which do annually produce flowers. The first tree of this kind which flowered here, was in the gardens of the late Earl of Peterborough, at Parsons Green, near Fulham, which was planted in a wilderness among other trees; before this [illegible] ted in the open air, the few [illegible] ich were then in the English gardens, were planted in pots and housed in winter, supposing they were too tender to live in the open air; but this soon after it was placed in the [illegible] und, convinced the gardener of their mistake, by the great progress

pots and tubs increaſed ſlowly in their growth; ſo that afterward there were many others planted in the full ground, which are now arrived to a large ſize, eſpecially thoſe which are planted in a moiſt ſoil. One of the handſomeſt trees of this kind, near London, is in the garden of Waltham Abbey; and at Wilton, the ſeat of the Earl of Pembroke, there are ſome trees of great bulk; but the old tree at Parſons Green is quite deſtroyed by the other trees which were ſuffered to over-hang it, and rob it of its nouriſhment, from the fear of taking them down, leſt, by admitting the cold air, the tulip-tree might be injured. The young ſhoots of this tree are covered with a ſmooth purpliſh bark; they are garniſhed with large leaves, whoſe foot-ſtalks are four inches long; they are ranged alternate; the leaves are of a ſingular form, being divided into three lobes; the middle lobe is blunt and hollowed at the point, appearing as if it had been cut with ſciſſars. The two ſide lobes are rounded, and end in blunt points. The leaves are from four to five inches broad near their baſe, and about four inches long from the foot-ſtalk to the point, having a ſtrong mid-rib, which is formed by the prolongation of the foot-ſtalk. From the mid-rib run many tranſverſe veins to the borders, which ramify into ſeveral ſmaller. The upper ſurface of the leaves is ſmooth, and of a lucid green, the under is of a pale green. The flowers are produced at the end of the branches; they are compoſed of ſix petals, three without and three within; which form a ſort of bell-ſhaped flower, from whence the inhabitants of North-America give it the title of tulip. Theſe petals are marked with green, yellow, and red ſpots, ſo make a fine appearance when the trees are well charged with flowers. The time of this tree's flowering is in July, and when the flowers drop, the germen ſwells and forms a kind of cone, but theſe ſeldom ripen in England.

Mr. Cateſby, in his Natural Hiſtory of Carolina, ſays, "There are ſome of theſe trees in America which are thirty feet in circumference; the boughs are unequal and irregular, making ſeveral bends or elbows, which render the trees diſtinguiſhable at a great diſtance, even when they have no leaves upon them. They are found in moſt parts of the northern continent of America, from the Cape of Florida to New-England, where the timber is of great uſe, the trunk being frequently hollowed, and made into boats big enough to carry a number of men."

This tree is propagated by ſeeds, brought from North-America.

Laurel-leaved TULIP TREE, [*Magnolia.*] There are four ſpecies of this tree, growing in North-America, ſome growing to the height of twenty feet, others to eighty feet. They are cultivated in England and are beautiful evergreens. They are propagated by ſeed, which muſt be procured from the place of their natural growth.

TUMBREL. A dung-cart. *See Trundle.*

TUPP. A ram.

TUPPING TIME. Ramming time.

TURBITH, [*Turpethum.*] The cortical part of the root of an Indian convolvulus, brought to us in oblong pieces, of a brown or aſh colour on the outſide, and whitiſh within: the beſt is ponderous, not wrinkled, eaſy to break, and diſcovers a large quantity of reſinous matter to the eye: its taſte is at firſt ſweetiſh; chewed for a little time, it becomes acrid, pungent, and naufeous. This root is a cathartic, not of the ſafeſt or moſt certain kind.

TURF. A blackiſh ſulphureous earth, uſed in ſeveral parts of England, Holland, and Flanders, as fuel.

In Flanders, their turf is dry or pared from off the ſurface of the earth, and cut in form of bricks. The ſedge, or ſpecies of graſs growing very thick on the turf earth, contributes greatly, when dry, to the maintenance of the fire.

TURKEY. The turkey is a very large and fine bird, and exceedingly well worth the regard of the prudent huſbandman. There are advantages and diſadvantages attending upon the raiſing of this, as other kinds of fowl; but all being weighed together, the former far outweigh the latter, and the intereſt of the farmer will lead him to think very ſeriouſly of receiving them as a part of his ſtock.

There is alſo this farther encouragement to his induſtry, that a great many of the diſadvantages attending the keeping of this fowl, may be remedied

or prevented by prudent management: and that there is no kind among all the poultry which will afford ſo many opportunities of improvement. There are ſeveral breeds of the turkey, much more different than thoſe among the cock and hen kinds; and the properly chooſing among theſe, will greatly add to the profit and eaſe of keeping them.

Among the advantages of the turkey may be reckoned his ſize, the price he fetches at market when in good condition, and the quantity of his dung, which is as valuable as any other kind whatſoever. He is fit for ſale alſo in the common condition at a good price; and his feathers are not to be neglected, in counting up theſe benefits.

Among the diſadvantages of turkeys are to be reckoned their ſtraggling diſpoſition, their being liable to many accidents, the difficulty of raiſing them, and the frequent deſtruction of them by vermin; as alſo the quantity of corn they devour. If fed altogether with this, they will eat more than they can ever be worth; but to this it may be anſwered, that the feeding them with corn is not neceſſary, for they will in general provide very well for themſelves; and in the ſame manner we ſhall ſhew that every other objection made againſt them may be removed: and that it will be greatly to the farmer's advantage to raiſe them in moſt places.

This kind of bird always ſucceeds beſt for the owner in open countries, becauſe theſe are not ſo much infeſted with vermin; and they are ſubject to ramble and be deſtroyed more than any kind, as obſerved already. This may be a very reaſonable caution for the huſbandman not to keep them in improper places; but we have counties enough in England that are not at all liable to that objection.

The firſt article to be conſidered in reſpect of the breeding of turkeys is the age of the cock and hen. The cock muſt be young, for the brood is never good unleſs he be in the vigour of his life; the hen may be older, for her care in ſitting and leading them is all that is required of her, and in the latter article the cock often aſſiſts her, when he is of a kindly ſort.

The turkey cock for breeding ſhould be about two years old; and the beſt time for the hen is at about four years; ſhe may be employed in breeding till ſhe is ſix, but when ſhe is too young, ſhe is moſt apt to neglect the brood; and when the cock is at all declined from his ſtrength, they are weakly.

Turkeys are not natural to our kingdom, and there is therefore always a wildneſs about them. The female of this kind does not lay familiarly and conveniently about houſes as the common hen, but rambles to a diſtance, and makes her neſt among thickets: for this reaſon her brood is from the beginning more liable to accidents. The farmer muſt therefore be watchful about the time of her laying, and take care to get her into the hen-houſe, and compel her to lay there; for this is the firſt precaution, and it is a very eſſential one about the brood.

It is a cuſtom with ſome, if there be convenience of thickets, or a little wood near the houſe, to let them take their own way, and lay and ſit there; and in the hardier breeds, with a little care of the young when new hatched, this will do very well; but there is never any harm in the other method, whatever be the breed; and there is a much greater certainty of ſucceſs.

The turkey naturally begins to lay in the month of March, and will ſit in April. The eggs are very large, and are excellent in the way of food, particularly they have a reſtorative virtue.

The proper number of eggs to let the hen ſit upon is eleven, ſome adviſe thirteen, but commonly there is leſs ſucceſs in that avaritious method, for they cannot all be well covered.

The turkey ſits about ſeven or eight and twenty days. Some of the eggs will ſometimes be hatched at five or ſix and twenty, and ſome will lie till thirty, but the middle time is the moſt natural.

The hatching of the brood is the time when the great care is required in their management. The turkey being naturally a bird of a warmer climate, is chilly in this; and particularly the tender young. They muſt be kept very carefully at firſt, eſpecially ſuch as happen to hatch before others of the ſame brood; the beſt way is to put them into a baſket with wool in it, and ſet them before the fire, at ſuch a diſtance as to be gently warmed.

From

The [illegible] is produced
egg from such [illegible] coun-
-tries then province the
[illegible] -

From this time the farmer is to depute ſomebody to act as a parent for them, for the hen is not to be expected to do much; they will follow her, and ſhould be permitted to do ſo in the warm part of the day, and ſhe ſhould be managed to take care of them. The cock alſo will often watch over them, keep them together, and defend them better than the hen; but neither are to be truſted without careful looking after. The proper method of managing them is this. They are to be kept in a warm and cloſe place altogether, while they are very young; and when they have got ſome ſtrength, they are to be let out two hours after the ſun is up in the morning, and taken in again before he ſets in the evening; and in the mean time they ſhould only be let into ſome walled place, or ſome incloſure ſo ſecure that they cannot ſtray.

At firſt they are to be fed in the houſe, and afterwards in this open place; and at all times they muſt be allowed a ſufficient ſupply of food, for their parents take at beſt but little care to help them to any. The very beſt food for them is green freſh cheeſe, and while they are young, their drink ſhould be only new milk; afterwards milk and water, making it weaker and weaker till they come to water alone, which they will then drink wherever they can find it. Curds are a very good food for them, but not ſo well as cheeſe. A very wholſome food alſo is a kind of thick haſty pudding made of oatmeal, water, and a little new milk among it.

As the tenderneſs of the young is one great article in the diſadvantage of the turkey, indeed the greateſt, care muſt be taken that the hen do not ſet herſelf at too early a ſeaſon. If the young are hatched in cold weather, it is ſcarce poſſible to rear them without conſiderable loſs; but if they be produced toward the latter end of May, which indeed is the moſt natural time, as well as the beſt, they will have a much better chance.

It is only while young that this bird is ſo exceedingly tender; for, when grown up, they are not only ſtrong enough to defend themſelves; but they always love to keep in flocks together.

"Moſt of our houſewives, ſays a Swediſh author on huſbandry, have long deſpaired of ſucceſs in rearing turkeys, and complained that the profit rarely indemnifies them for their trouble and loſs of time; whereas, continues he, little more is to be done than to plunge the chick into a veſſel of cold water, the very hour, or if that cannot be, the day it is hatched, forcing it to ſwallow one whole pepper-corn, and then reſtoring it to its mother. From that time it will become hardy, and fear the cold no more than a hen's chick. After which it muſt be remembered that theſe uſeful creatures are ſubject to one particular malady whilſt they are young, which carries them off in a few days. When they begin to droop, examine carefully the feathers on their rump, and you will find two or three, whoſe quill part is filled with blood. Upon drawing theſe the chick recovers, and after that requires no other care than what is commonly beſtowed on poultry that range the court-yard.

"Theſe articles are too true to be denied; and in proof of the ſucceſs, three pariſhes in Sweden have, for many years, gained ſeveral hundred pounds by rearing and ſelling turkeys."

TURNIP, [*Rapa.*] Miller reckons three diſtinct ſpecies of turnips, the round, the oblong, and the French turnip; the firſt is the common field turnip, and of this there are ſeveral varieties, but the large green topped is chiefly preferred above all the reſt.

Perhaps there has never been a greater improvement in huſbandry than ſowing turnips, not only for the advantage of keeping a larger quantity of ſtock than could otherwiſe be done, but alſo the great advantage which the ground will receive from the turnips themſelves, eſpecially if they are eaten off the land by ſheep. Turnips will grow on ſtrong land as well as on light land, but light land will beſt bear the foot of the ſheep, when feeding off.

Turnips ſhould be ſown according as they may be wanted, from Midſummer to a fortnight following, and will require a winter and ſummer fallow of the land thoroughly to clean it; dung will be proper where it can be afforded, as the turnips will grow the faſter, and be ſooner out of the reach of the fly. About a pint of ſeed is enough for an acre; and ſoon after they put forth the firſt

first leaf, they should be hoed and thoroughly thinned, and soon after they should be hoed again with a six or seven inch hoe; this will keep down all annual weeds, and wonderfully assist the vegetation and growth of the turnips, by drawing the earth to the roots and leaving them sufficient room to spread.

We would advise the farmer to be very careful to obtain his seed of a good sort, and at a distance, from a person on whom he can rely.

If the fly should attack the turnips, we advise him to sow some lime-kiln wood-ashes which have never been wetted over the turnips, while the dew is on them, as from our own experience we can warrant it successful.

There has been another method practised in the turnip husbandry, and that is by drilling, which by those who have tried it, is much recommended, but still, we fancy the broad-cast will outlive the other. Farmers are a prudent set of men, and not easily misled into the schemes of uncertainty; whenever they find the practice is really good they will follow it, but they must have better evidence than is generally given.

When caterpillars attack the turnips, Mr. Miller recommends to turn in hungry poultry.

When the turnips are all off, Mr. Miller says one ploughing will do for barley;—it may be so, but we will take upon ourselves to say that three will do better; nor would we chuse to trust to one ploughing for barley. Indeed when the season ran backward, we might venture to trust white oats to one ploughing, but nothing but necessity should induce us to do that.

TURNIP-ROOTED *Cabbage*. See CABBAGE.

TURNSOLE. See HELIOTROPE.

TURPENTINE, [*Terebinthia.*] The species of turpentines kept in the druggists shops are, the Chian or cypress turpentine, the Venice turpentine, the Strasburg turpentine, and the common turpentine.

The Chian or cypress turpentine is generally about the consistence of thick honey, very tenacious, clear, and almost transparent, of a white colour, with a cast of yellow, and frequently of blue; it has a warm, pungent, bitterish taste, and a fragrant smell, more agreeable than any of the other turpentines.

This juice is the produce of the common terebinth, an evergreen tree or shrub, which grows spontaneously in the warmer climates, and endures the colds of our own. The turpentine brought to us, is extracted in the islands whose names it bears, by wounding the trunk and branches a little after the buds have come forth; the juice issues limpid, and clear as water, and by degrees thickens into the consistence in which we meet with it. A like juice exuding from this tree in the eastern countries, inspissated by a slow fire, is of frequent use, as a masticatory, among the Persian ladies, who (as Kœmpfer informs us) are continually chewing it, in order to fasten and whiten the teeth, sweeten the breath, and promote appetite.

Venice turpentine is usually thinner than any of the other sorts, of a clear, whitish, or pale yellowish colour, a hot, pungent, bitterish, disagreeable taste, and a strong smell, without any thing of the fine aromatic flavour of the Chian kind.

The true Venice turpentine is obtained from the larch, a large tree growing in great abundance upon the Alps and Pyrenean mountains, and not uncommon in the English gardens. What is usually met with in the shops, under the name of Venice turpentine, comes from New England; of what tree it is the produce, we have no certain account: the finer kinds of it are in appearance and quality not considerably different from the true sort above described.

Strasburgh turpentine is, as we generally meet with it, of a middle consistence betwixt the two foregoing, more transparent, and less tenacious than either; its colour a yellowish brown. Its smell is very fragrant, and more agreeable than that of any of the other turpentines, except the Chian; in taste it is the bittereſt, yet the least acrid.

Common turpentine is the coarsest, heaviest, in taste and smell the most disagreeable, of all the sorts; it is about the consistence of honey, of an opake browniſh white colour.

This is obtained from the wild pine, a low unhandsome tree, common in

different

different parts of Europe: this tree is extremely resinous, and remarkably subject to a disease from a redundance and extravasation of its resin, insomuch that, without due evacuation, it swells and bursts. The juice, as it issues from the tree, is received in trenches made in the earth, and afterwards freed from the grosser impurities by colature through wicker baskets.

All these juices yield in distillation with water, an highly penetrating essential oil, a brittle insipid resin remaining behind. With regard to their medical virtues, they promote urine, cleanse the parts concerned in the evacuation thereof, and deterge internal ulcers in general; and at the same time, like other bitter hot substances, strengthen the tone of the vessels: they have an advantage above most other acrid diuretics, that they gently loosen the belly. They are principally recommended in gleets, the fluor albus, and the like; and by some in calculous complaints: where these last proceed from sand or gravel, formed into a mass by viscid mucous matter, the turpentines, by dissolving the mucus, promote the expulsion of the sand; but where a calculus is formed, they can do no service, and only ineffectually irritate or inflame the parts. In all cases accompanied with inflammation, these juices ought to be abstained from, as this symptom is increased, and not unfrequently occasioned by them. It is observable, that the turpentines impart, soon after taking them, a violet smell to the urine; and have this effect, though applied only externally to remote parts; particularly the Venice sort. This is accounted the most powerful as a diuretic and detergent; and the Chian and Strasburgh as corroborants: the Strasburgh is an ingredient in the mercurial pills and Locatellus's balsam, and the Chian in mithridate and theriaca. The common turpentine, as being the most offensive, is rarely given internally. Its principal use is in plaisters and ointments, among farriers, and for the distillation of the oil or spirit, as it is called. The dose of these juices is from a scruple to a dram and a half: they are most commodiously taken in the form of a bolus, or dissolved in watery liquors by the mediation of the yolk of an egg or mucilage. Of the distilled oil, a few drops are a sufficient dose: this is a most potent, stimulating, detergent diuretic, oftentimes greatly heats the constitution, and requires the utmost caution in its exhibition.

TURPENTINE *Tree.* See MASTIC TREE.

Venice TURPENTINE *Tree.* The Larch tree.

TUTSAN. St. John's Wort.

TWIFALLOWING. Ploughing the ground a second time.

HERB TWOPENCE, [*Nummularia.*] This grows spontaneously in moist watery places, and creeps on the ground, with two little roundish leaves at each joint. Their taste is subastringent, and very lightly acid; hence they stand recommended by Boerhaave in the hot scurvy, and in uterine and other hæmorrhages. But their effects are so inconsiderable, that common practice takes no notice of them.

TWYBLADE. See BIFOIL.

Tweesh-grass. See Couch-grass.

Twin cow-calf never breeds. See Freemartin.

— bull — is said not to breed by.

V.

VALE. Low ground; a valley.

VALERIAN, [*Valeriana.*] There are many ſpecies of this plant, but that chiefly eſteemed, is the mountain, or wild valerian, the roots of which are much uſed in medicine.

This root conſiſts of a number of ſtrings or fibres matted together, iſſuing from one common head; of a whitiſh or pale brownish colour: its ſmell is ſtrong, like a mixture of aromatics with fœtids; the taſte unpleaſantly warm, bitteriſh, and ſubacrid. There is another wild valerian, with broader leaves, of a deeper and ſhining green colour, met with in watery places. Both ſorts have hitherto been uſed indiſcriminately, and Linnæus has joined them into one ſpecies, under the name of *valeriana foliis omnibus pinnatis.* Our college have reſtrained the ſhops to the firſt, which is conſiderably the ſtrongeſt, and loſes of its quality, if tranſplanted into ſuch ſoils as the other naturally delights in. The roots, produced in low watery grounds, have a remarkably faint ſmell in compariſon of the others, and ſometimes ſcarce any at all. Wild valerian is a medicine of great uſe in nervous diſorders, and is particularly ſerviceable in epilepſies proceeding from a debility of the nervous ſyſtem. It was firſt brought into eſteem in theſe caſes by Fabius Columna, who by taking the powdered root, in the doſe of half a ſpoonful, was cured of an inveterate epilepſy after many other medicines had been tried in vain. Repeated experience has ſince confirmed its efficacy in this diſorder; and the preſent practice lays conſiderable ſtreſs upon it. The common doſe is from a ſcruple to a dram, in infuſion from one to two drams. Its unpleaſant flavour is moſt effectually concealed by a ſuitable addition of mace.

Greek VALERIAN. See GREEK VALERIAN.

VAN. An inſtrument to winnow corn.

VASCULIFEROUS *Plants.* Such whoſe ſeeds are contained in veſſels divided into cells.

VAT. A veſſel for holding wine, ale, beer, cyder, &c. in the time of their preparation. *Wine Cheese Coat*

UDDER. That part of a cow, mare, ewe, &c. where the milk is prepared, anſwering to the breaſts in women.

VEGETABLE. A term applied to all plants, conſidered as capable of growth, i. e. all natural bodies which have parts organically formed for generation and accretion, but not ſenſation.

Vegetables, according to the analyſes made of them by chemiſtry, are diſtinguiſhable into two grand tribes, the acid and the alkaline; the firſt affording a volatile acid, and the ſecond a volatile alkali, upon a dry diſtillation; thus guaiacum, cedar, box, cinnamon, cloves, ſorrel, mint, balm, &c. afford an acid; but garlic, onions, horſe-raddiſh, ſcurvy-graſs, muſtard, &c. afford an alkali, which rectified, is hardly diſtinguiſhable from that of animal ſubſtances, ſo as nearly to reſemble the ſpirit and ſalt of hartſhorn.

VEGETATION. The act whereby plants receive their nouriſhment and growths; of which, three principal functions are underſtood, viz. nutrition, increaſe, and generation.

From Scripture we learn, that the earth has been endued, from the beginning, with a certain ſeminal virtue to produce plants; which virtue, proceeding from God, was not confined to the firſt production of things, but extends likewiſe to all future conſequences of times; and this faculty which the earth has of producing plants,

plants, is from this commandment of the Almighty: "Let the earth bring forth graſs, the herb yielding ſeed, and the fruit-tree yielding fruit after his kind, whoſe ſeed is in itſelf upon the earth; and it was ſo."

VELLING. Ploughing, or cutting up the turf, or upper ſurface of the ground, in order to its being burnt.

VENTILATOR. A machine by which the noxious air of any cloſe place (as an hoſpital, jail, ſhip, chamber, granary, &c.) may be changed for freſh air.

VENUS' COMB. See *Sweet* FERN.

VENUS' LOOKING GLASS. Corn Violet.

VENUS' NAVELWORT. See *Venus'* NAVELWORT.

VERJUICE. A liquor obtained from grapes or apples too acid for wine or cyder. It is generally made in England from the juice of the crab, or wild apple.

VERMIN. A collective name including all kinds of ſmall animals, that are troubleſome to men, beaſts, corn, fruits, &c.

VERNAL. Something belonging to the ſpring ſeaſon.

VERTICULATE *Plants*. Such as produce their flowers round the joints of the ſtalks in whorles; as hyſſop, mint, thyme, &c.

VERVAIN, [*Vervena*.] This plant is very common on the ſides of roads, foot-paths, and farm-yards, near habitations; for although there is ſcarce any part of England, in which this is not found in plenty, yet it is never found above a quarter of a mile from a houſe; which occaſioned its being called Simpler's Joy, becauſe wherever this plant is found growing, it is a ſure token of a houſe being near; this is a certain fact, but not eaſy to be accounted for. It is rarely cultivated in gardens, but is the ſort directed by the College of Phyſicians for medicinal uſe, and is brought to the markets by thoſe who gather it in the fields.

There are many other ſpecies of vervain, natives of different counties, ſome of which are too tender to bear the cold of our climate, and require the aſſiſtance of the green-houſe and ſtove.

VERVAIN MALLOW. Hollyhock.

VETCH. See TARE.

Bitter VETCH. See BITTER VETCH.

Chicklin VETCH. See CHICKLIN VETCH.

Crimſon Graſs VETCH. Chicklin Vetch.

Hatchet VETCH, [*Securidaca*.] This plant grows naturally in the corn-fields in Spain and Italy; it is annual, and hath trailing herbaceous ſtalks, which grow a foot and a half long, dividing into many branches, which ſpread on the ground, garniſhed with winged leaves, compoſed of ſeven or eight pair of oval obtuſe lobes terminated by an odd one, of a deep green and ſmooth.

It is propagated by ſowing the ſeeds in borders of light earth in the ſpring, in the places where the plants are to abide, for they ſeldom ſucceed well if they are tranſplanted; they ſhould be allowed at leaſt two feet diſtance, becauſe their branches trail upon the ground. When the plants come up, they will require no other care but to thin them where they are too cloſe, and keep them clean from weeds. A few of theſe plants may be admitted into every good garden for variety, though there is no great beauty in their flowers.

Horſe-ſhoe VETCH. See HORSE VETCH.

Liquorice VETCH. See WILD LIQUORICE.

Milk VETCH. Liquorice Vetch.

VETCHLING, [*Apaca*.] This plant is found wild in divers parts of England on arable land, but is ſeldom preſerved in gardens. It is an annual plant, which periſhes ſoon after the ſeeds are perfected.

VINE, [*Vitis*.] There are a great number of grapes cultivated in the gardens, and are all propagated either from layers or cuttings, the latter of which is the more preferable method; for the roots of vines do not grow ſtrong and woody, as in moſt ſorts of trees, but are long, ſlender, and pliable; therefore when they are taken out of the ground they ſeldom ſtrike out any fibres from the weak roots, which generally ſhrivel and dry; ſo that they rather retard than help the plants in their growth, by preventing the new fibres from puſhing out; for which reaſon it is bettter to plant a good cutting than a rooted plant, provided it be well

chosen, for there is little danger of its growing.

But as there are few persons who make choice of proper cuttings, or at least that form their cuttings rightly in England, so it will be proper to give directions for this in the first place. You should always make choice of such shoots as are strong and well ripened of the last year's growth; these should be cut from the old vine, just below the place where they were produced, taking a knot or piece of the two-years wood to each, which should be pruned smooth; then you should cut off the upper part of the shoots, so as to leave the cutting about sixteen inches long. When the piece or knot of old wood is cut at both ends, near the young shoot, the cuttings will resemble a little mallet; from whence Columella gives the title of malleolus to the vine-cuttings. In making the cuttings after this manner, there can be but one taken from each shoot; whereas most persons cut them into lengths of about a foot, and plant them all, which is very wrong, for the upper part of the shoots are never so well ripened as the lower, which was produced early in the spring, and has had the whole summer to harden; so that if they take root, they never make so good plants, for the wood of those cuttings being spongy and soft, admits the moisture too freely, whereby the plants will be luxuriant in growth, but never so fruitful as such whose wood is closer and more compact.

When the cuttings are thus prepared, if they are not then planted, they should be placed with their lower part in the ground in a dry soil, laying some litter upon their upper parts to prevent them from drying: in this situation they may remain till the beginning of April, (which is the best time for planting them) when you should take them out, and wash them from the filth they have contracted; and if you find them very dry, you should let them stand with their lower parts in water six or eight hours, which will distend their vessels, and dispose them for taking root. Then the ground being before prepared where the plants are designed to remain (whether against walls or for standards, for they should not be removed again) the cuttings should be planted; but in preparing the ground you should consider the nature of the soil, which, if strong, and inclinable to wet, is by no means proper for grapes; therefore where it so happens, you should open a trench where the cuttings are to be planted, which should be filled with lime, rubbish, the better to drain off the moisture; then raise the border with fresh light earth about two feet thick, so that it may be at least a foot above the level of the ground; then you should open the holes at about six feet distance from each other, putting one good, strong cutting into each hole, which should be laid a little sloping, that their tops may incline to the wall: but it must not be put in so deep, as that the uppermost eye may be level with the surface of the ground; for when any part of the cutting is left above ground, as is the common method used by the English gardiners, most of the buds attempt to shoot, so that the strength of the cutting is divided to nourish so many shoots, which must of course be weaker than if only one of them grew; whereas, on the contrary, by burying the whole cutting in the ground, the sap is all employed on one single shoot, which consequently will be much stronger; besides, the sun and air are apt to dry that part of the cutting which remains above ground, and so often prevents their buds from shooting.

Then having placed the cutting into the ground, you should fill up the hole gently, pressing down the earth with your foot close about it, and raise a little hill just upon the top of the cutting, to cover the upper eye quite over, which will prevent it from drying; this being done, there is nothing more necessary but to keep the ground clear from weeds until the cuttings begin to shoot; at which time you should look over them carefully, to rub off any small shoots, if such are produced, fastening the first main shoot to the wall, which should be constantly trained up, as it is extended in length, to prevent its breaking or hanging down; you must continue to look over these once in about three weeks during the summer season, constantly rubbing off all lateral shoots which are produced; and be sure to keep the ground constantly clear from weeds, which, if suffered to grow, will exhaust the goodness of the soil and starve the cuttings.

The

The Michaelmas following, if your cuttings have produced ſtrong ſhoots, you ſhould prune them down to two eyes.

In the ſpring, after the cold weather is paſt, you muſt gently dig up the borders to looſen the earth; but you muſt be very careful in doing this, not to injure the roots of the vines; you ſhould alſo raiſe the earth up to the ſtems of the plants, ſo as to cover the old wood, but not ſo deep as to cover either of the eyes of the laſt years wood. After this they will require no farther care until they begin to ſhoot, when you ſhould look over them carefully, to rub off all weak dangling ſhoots, leaving no more than the two ſhoots, which are produced from the two eyes of the laſt year's wood, which ſhould be faſtened to the wall; and ſo from this, until the vines have done ſhooting, you ſhould look them over once in three weeks or a month, to rub off all lateral ſhoots as they are produced, and to faſten the main ſhoots to the wall as they are extended in length, which muſt not be ſhortened before the middle or latter end of July, when it will be proper to nip off their tops, which will ſtrengthen the lower eyes, and during the ſummer ſeaſon you muſt conſtantly keep the ground clear from weeds; nor ſhould you permit any ſort of plants to grow near the vines, which would not only rob them of nouriſhment, but ſhade the lower parts of the ſhoots, and thereby prevent their ripening; which will not only cauſe their wood to be ſpongy and luxuriant, but render it leſs fruitful.

As ſoon as the leaves begin to drop in autumn, you ſhould prune theſe young vines again, leaving three buds to each of the ſhoots, provided they are ſtrong; otherwiſe it is better to ſhorten them down to two eyes if they are good, for it is a very wrong practice to leave much wood upon young vines, or to leave their ſhoots too long, which greatly weakens the roots; then you ſhould faſten them to the wall, ſpreading them out horizontally each way, that there may be room to train the new ſhoots the following ſummer, and in the ſpring the borders muſt be digged as before.

The third ſeaſon you muſt go over the vines again, as ſoon as they begin to ſhoot, to rub off all dangters as before, and train the ſtrong ſhoots in their proper places, which this year may be ſuppoſed to be two from each ſhoot of laſt year's wood; but if they attempt to produce two ſhoots from one eye, the weakeſt of them muſt be rubbed off, for there ſhould never be more than one allowed to come out of each eye. If any of them produce fruit, as many times they will the third year, you ſhould not ſtop them ſo ſoon as is generally practiſed upon the bearing ſhoots of old vines, but permit them to ſhoot forward till a month after Midſummer, at which time you may pinch off the tops of the ſhoots; for if this were done too ſoon, it would ſpoil the buds for the next year's wood, which in young vines muſt be more carefully preſerved than on older plants, becauſe there are no other to be laid in for a ſupply of wood, as is commonly practiſed on old vines.

During the ſummer you muſt conſtantly go over your vines, and diſplace all weak lateral ſhoots as they are produced, and carefully keep the ground clear from weeds, as was before directed, that the ſhoots may ripen well, which is a material thing to be obſerved in moſt ſorts of fruit-trees, but eſpecially in vines, which ſeldom produce any fruit from immature branches. Theſe things being duly obſerved, are all that is neceſſary in the management of young vines.

Spaniſh Arbor VINE. Bindweed.

White VINE. } Briony.
Wild VINE. }

VINEGAR, [*Acetum.*] An acid penetrating liquor, prepared from wine, cyder, beer, &c. of conſiderable uſe both as a medicine and ſauce.

The proceſs of turning vegetable matters to vinegar, is thus delivered by Dr. Shaw: Take the ſkins of raiſins, after they have been uſed in making wine, and pour three or four times their own quantity of boiling water upon them, ſo as to make a thin aqueous mixture. Then ſet the containing caſk, looſely covered, in a warmer place than is uſed for vinous fermentation; and the liquor in a few weeks time will become a clear and ſound vinegar; which being drawn off from its ſediment, and preſerved in another caſk, well ſtopped down, will continue perfect, and fit for uſe.

This experiment shews us a cheap and ready way of making vinegar from refuse materials; such as the husks of grapes, decayed raisins, the lees of wine, grounds of ale, beer, &c. which are frequently thrown away as useless. Thus, in many wine countries, the marc, rape, or dry pressing of grapes, are thrown in heaps, and suffered to putrify unregarded, though capable of affording as good vinegar as the wine itself. In some places they bury copper plates in these husks, in order to make verdigrease; but this practice seems chiefly confined to the southern parts of France. Our present experiment shews us how to convert them to another use; and the direction extends to all the matters that have once undergone, or are fit to undergo a vinous fermentation, for that all such matters will afford vinegar. Thus all our summer-fruits in England, even blackberries; all the refuse washings of a sugar-house, cyder-pressings, or the like, will make vinegar, by means of water, the open air, and warmth.

The whole process, whereby this change is effected, deserves to be attentively considered; and first, the liquor to be thus changed, being kept warmer than in vinous fermentation, it begins in a few days to grow thick or turbid; and without throwing up bubbles, or making any considerable tumult, as happens in vinous fermentation, deposits a copious sediment.

The effect of this separation begins to appear first on the surface of the liquor, which gathers a white skin, that daily increases in thickness, till at length it becomes like leather; and now, if continued longer in this state, the skin turns blue, or green, and would at last grow solid, and putrify; therefore, in keeping down this skin as it grows, and thrusting it gently down to the bottom of the vessel, consists much of the art of vinegar-making, especially from malt.

Method of making Cyder Vinegar. The cyder (the meanest of which will serve the purpose) is first to be drawn off fine into another vessel, and a quantity of must, or pouz of apples, to be added; the whole is to be set in the sun, if there be a conveniency for the purpose; and at a week or nine days end, it may be drawn off.

Method of making Beer Vinegar. Take a middling sort of beer, indifferently well hopped; into which, when it has worked well, and is grown fine, put some rape, or husk of grapes, usually brought home for that purpose; mash them together in a tub, then, letting the rape settle, draw off the liquid part, put it into a cask, and set it in the sun as hot as may be (the bung only covered with a tile or slate-stone) and in about thirty or forty days, it will become a good vinegar, and may pass in use as well as that made of wine, if it be refined, and kept from turning musty.

Or thus: to every gallon of spring-water, add three pounds of Malaga-raisins; which put into an earthen jar, and place them where they may have the hottest sun from May till Michaelmas; then pressing all well, tun the liquor up in a very strong iron-hooped vessel, to prevent its bursting; it will appear very thick and muddy, when newly pressed; but will refine in the vessel, and be as clear as wine.

Thus let it remain untouched for three months, before it be drawn off, and it will prove excellent vinegar.

Method of making Wine Vinegar. Any sort of vinous liquor, being mixed with its own faeces, flowers, or ferment, and its tartar, first reduced to powder; or else with the acid and austere stalks of the vegetable from whence the wine was obtained, which hold a large proportion of tartar; and the whole being kept frequently stirring in a vessel which has formerly held vinegar, or set in a warm place full of the steams of the same, will begin to ferment anew, conceive heat, grow sour by degrees, and soon turn into vinegar.

The remote subjects of acetous fermentation are the same with those of vinous; but the immediate subjects of it are all kinds of vegetable juices, after they have once undergone that fermentation which reduces them to wine; for it is absolutely impossible to make vinegar of must, the crude juice of grapes, or other ripe fruits, without the previous assistance of vinous fermentation.

The proper ferments for this operation, whereby vinegar is prepared, are, 1. The faeces of all acid wines. 2. The leys of vinegar. 3. Pulverised tartar;

tartar; especially that of Rhenish wine, or the cream, or chrystals thereof. 4. Vinegar itself. 5. A wooden vessel well drenched with vinegar, or one that has been long employed to contain it. 6. Wine that has often been mixed with its own fæces. 7. The twigs of vines, and the stalks of grapes, currants, cherries, and other vegetables of an acid austere taste. 8. Baker's leaven, after it is turned acid. 9. All manner of ferments, compounded of those already mentioned.

The French use a method of making vinegar different from that above described. They take two large oaken vessels, the larger the better, open at top; in each of which they place a wooden grate, within a foot of the bottom; upon these grates they first lay twigs, or cuttings of vines, and afterwards the stalks of the bunches without the grapes themselves, or their stones; till the whole pile reaches within a foot of the brim of the vessels; then they fill one of these vessels with wine to the very top, and half fill the other; and with liquor drawn out of the full vessel, fill up that which was only half full before; daily repeating the same operation, and pouring the liquor back from one vessel into another; so that each of them is full, and half full, by turns.

When this process has been continued for two or three days, a degree of heat will arise in the vessel, which is then but half full, and increase for several days successively, without any appearance of the like in the vessel which happens to be full; during those days; the liquor whereof will still remain cool; and as soon as the heat ceases in the vessel that is half full, the vinegar is prepared: which, in the summer, happens on the fourteenth or fifteenth day from the beginning; but in the winter, the fermentation proceeds much slower, so that they are obliged to forward it by artificial warmth, or the use of stoves.

When the weather is exceeding hot, the liquor ought to be poured off from the full vessel into the other twice a day; otherwise the liquor will be over-heated, and the fermentation prove too strong; whence the spirituous parts will fly away, and leave a vapid wine, instead of a vinegar behind.

The full vessel is always to be left open at the top, but the mouth of the other must be closed with a cover of wood, in order the better to keep down and fix the spirit in the body of the liquor; otherwise, it might easily fly off in the heat of fermentation. The vessel that is only half full seems to grow hot rather than the other, because it contains a much greater quantity of the vine-twigs and stalks, than that, in proportion to the liquor; above which, the pile rising to a considerable height, conceives heat the more, and so conveys it to the wine below.

Vinegar is a medicine of excellent use in all kinds of inflammatory and putrid disorders, either internal or external; in ardent bilious fevers, pestilential and other malignant distempers, it is recommended by Boerhaave as one of the most certain sudorifics. Weakness, fainting, vomiting, hysterical and hypochondriacal complaints have also been frequently relieved by vinegar applied to the mouth or nose, or received into the stomach. Distilled vinegar has the same virtues, only in a stronger degree.

There are also medicated vinegars; as vinegar of antimony, of elder, litharge, roses, squills, treacle, &c. which derive their chief virtues from the vinegar.

VINEYARD. A plantation of vines without the assistance of walls.

VINOUS. Something that relates to wine, or that hath the taste and smell of it.

VINTAGE. A crop of grapes, or the produce of a vineyard each season.

VIOLET, [*Viola.*] This is often found wild in hedges and shady places, and flowers in March; the shops are generally supplied from the gardens. In our markets we meet with the flowers of a different species; these may be distinguished from the foregoing by their being larger, of a pale colour, and of no smell. The officinal flowers have a very pleasant smell, and a deep purplish blue colour, denominated from them violet. They impart their colour and flavour to aqueous liquors: a syrup made from this infusion has long maintained a place in the shops, and proves an agreeable and useful laxative for children.

Dame's

Dame's VIOLET. See DAME'S VIOLET.

Bulbous VIOLET. Snowdrop.

Dog's Tooth VIOLET. See DOG'S TOOTH.

Corn VIOLET. See CORN VIOLET.

VIPER. The name of a well-known ſerpent, common in many parts of England.

The bathing the part bit by a viper with olive oil, is ſaid to effectually prevent the fatal conſequences that would otherwiſe attend it.

VIPER'S BUGLOSS, [*Echium.*] This plant grows naturally on chalky lands in moſt parts of England. There are ſeveral ſpecies brought into the Engliſh gardens, from Germany, France, Portugal, and other countries, ſome of which are annual, and ſome biennial plants. They are propagated by ſeeds.

VIPER'S GRASS, [*Scorzonera.*] This plant is cultivated in the Engliſh gardens for food and phyſic; it grows naturally in Spain. The root is carrot-ſhaped, about the thickneſs of a finger, covered with a dark brown ſkin, is white within, and has a milky juice; the lower leaves are long, ending with a long acute point; they are waved and ſinuated at their edges. The ſtalk riſes three feet high, is ſmooth, branching at the top, and garniſhed with a few narrow leaves, whoſe baſe half embrace the ſtalk. The flowers terminate the ſtalks in ſcaly empalements, compoſed of many narrow, tongue-ſhaped hermaphrodite florets, lying imbricatim over each other like the ſcales on fiſh; they are of a bright yellow colour. After theſe are decayed, the germen which ſits in the common empalement turns to oblong cornered ſeeds, having a roundiſh ball of feathery down at the top. There are ſeveral ſpecies kept in the gardens, all propagated by ſeeds.

VIRGIN's BOWER. See CLIMBERS.

VIRGINIAN SILK, [*Periploca.*] This plant grows naturally in Syria, but is hardy enough to thrive in the open air in England. It hath twining ſhrubby ſtalks, covered with a dark bark, which twiſt round any neighbouring ſuppert, and will riſe more than forty feet high, ſending out ſlender branches from the ſides, which twine round each other, and are garniſhed with oval ſpear-ſhaped leaves near four inches long, and two broad in the middle, of a lucid green on their upper ſide, but pale on their under, ſtanding by pairs upon ſhort footſtalks.

This is hardy enough to thrive in this country with a little protection from the froſt of the winter. Another ſort brought from Vera Cruz requires the aſſiſtance of a warm ſtove.

VIRGINIAN ACACIA. See ACACIA.

VITRIOL. A ſaline chryſtalline concrete, compoſed of metal, and an acid, ſimilar to thoſe of ſulphur and allum. There are but three metallic bodies, which this acid is capable of perfectly diſſolving or being united with, into a chryſtalline appearance, zinc, copper, and iron; with the firſt it forms a white, with the ſecond a blue, and with the third a green ſalt.

White VITRIOL. Found in the mines of Goſlar, ſometimes in tranſparent pieces, but more commonly in form of white efflorescences, which are diſſolved in water, and afterwards reduced by evaporation and chryſtallization into large maſſes.

Blue VITRIOL. Greateſt part of the blue vitriol at preſent met with in the ſhops, is ſaid to be artificially prepared by uniting copper with the vitriolic acid.

Green VITRIOL. This is prepared in large quantity at Deptford, by diſſolving iron in the acid liquor, which runs from certain ſulphureous pyrites expoſed for a length of time.

ULIGINOUS. An appellation given to a moiſt, mooriſh, and fenny ſoil.

UMBEL. The extremity of a ſtalk or branch of a plant, divided into ſeveral peduncles, or rays, beginning from the ſame point, and opening in ſuch a manner, as to form an inverted cone.

UMBELLIFEROUS *Plants.* Theſe whoſe flowers are produced in an umbel, on the top of the ſtalks, ſomewhat reſembling an umbrella. Of this kind are the fennel, parſley, parſnip, carrot, hemlock, &c.

UNDERWOOD. Coppice, or any wood not accounted timber.

VOOR. Fallow land.

URE. The udder of a cow, ſheep, or other animal.

URITH. Etherings, or windings of hedges.

URRY. A ſort of blue or black clay, lying near a vein of coal.

URINE. A ſerous and ſaline matter ſeparated from the blood of animals, and emitted by the canal of the urethra.

It is of excellent uſe as a manure, when deprived of its hot fiery particles by time, which will ſo alter its nature as to render it an extraordinary fertilizer of every kind of ſoil. Columella certifies that old urine is excellent for the roots of trees. Mr. Hartlib commends the Dutch for preſerving the urine of cows as carefully as they do the dung, to enrich their lands; and inſtances a woman he knew near Canterbury, who ſaved in a pail all the urine ſhe could, and when the pail was full, ſprinkled it on her meadow, the graſs of which looked yellow at firſt, but afterwards grew ſurpriſingly. Similar to this is what Mr. Bradley relates, as of his own knowledge. Human urine was thrown into a little pit conſtantly every day, for three or four years. Two years after, ſome earth was taken out of this pit, and mixed with twice as much other earth, to fill up a hollow place in a graſs walk. The turf which was laid upon this ſpot grew ſo largely and vigorouſly, beſides being much greener than the reſt, that by the beſt computation he could make, its graſs, in a month's time, was above four times as much in quantity as that of any other ſpot of the ſame ſize, though the whole walk was laid on very rich ground. The author of the Engliſh Improver is therefore very right in ſaying, that human urine is of greater worth, and will fatten land more, than is generally imagined by our farmers, whom he adviſes to take all opportunities of preſerving this, and every ſort of urine, for their ground, as carefully as is done in Holland.

USTILAGO. The ſame with burnt grain.

UTENSIL. A domeſtic moveable of any kind.

W.

WAD, black lead.

WAGGON, a vehicle or carriage, of which there are various forms, accommodated to the different uſes they are intended for. *See the article* WHEEL.

WAIF, an eſtray, which for want of the owner's appearance after it has been cried and publiſhed in the neighbouring markets, is forfeited to the lord of the manor.

WAKE ROBIN. See ARUM.

WALKS are made either of gravel, ſand, or graſs; theſe three ſorts of walks are the moſt common in England; but where gravel or ſand cannot be procured, they are ſometimes laid with powdered coal, ſea-coal aſhes, and ſometimes of powdered brick, but theſe are rarely uſed, when either gravel or ſand can be procured; however, where ſea-coal aſhes can be had, it is preferable to the powdered coal or bricks, becauſe they bind very hard, and never ſtick to the feet in froſty weather, which is a good quality, but the darkneſs of its colour has been an objection to the uſe of it in gardens; however, for wilderneſs-walks we think it is preferable to moſt other materials; but we ſhall proceed to give directions for the making of the ſeveral ſorts of walks, and firſt of the gravel-walks.

In order to the laying of walks in gardens, when they are marked out, the earth ſhould be taken away to a certain depth, that the bottom of them may be filled with ſome lime-rubbiſh, or coarſe gravel, flint ſtones, or other rocky materials, which will be ſerviceable to prevent weeds from growing through the gravel, and alſo to keep away worm-caſts. This bottom ſhould be laid ten inches or a foot thick, over which the coat of gravel ſhould be ſix or eight inches; which gravel ſhould be

be fine, but yet not ſkreened, becauſe that ſpoils it. This ſhould be laid on a heap, rounding, that the larger rough ſtones may run down on the ſides, which being every now and then raked off, the gravel by that means will be ſufficiently fine.

After the gravel has been laid to the thickneſs above-mentioned, then the walks muſt be exactly levelled, and raked true from all great drips, as well as little holes. By this means moſt of the ſtones of the walks will be raked under your feet, which ſhould rather be gently ſprinkled back again, over the laſt length that is raked, than buried, (as is the practice of many gardeners) for by this means the walk will lie much harder, and the coarſeſt ſtones will very much contribute to its firmneſs.

There is alſo a great fault committed frequently, in laying walks too round, and ſome to that degree, that they cannot be walked on with that eaſe and pleaſure that ought to be.

The common allowance for a gravel-walk of five feet breadth, is an inch riſe in the crown; ſo that if a walk be twenty feet wide, according to this proportion, it will be four inches higher in the middle than on each ſide, and a walk of twenty-five feet will be five inches, one of thirty feet ſix inches, and ſo on.

When a walk has been thus carefully laid, trodden down, and raked, or rather, after every length or part of it, (which commonly is about fifteen feet each) then it ſhould be rolled well both in length, and alſo croſs-ways. The perſon who rolls it ſhould wear ſhoes with flat heels, that he may not make holes in the walks, for when theſe are once made in a new walk, it will not be eaſy to roll them out again.

In order to lay gravel-walks firm, it will be neceſſary to give them three or four water-rollings, that is, they muſt be rolled when it rains ſo very faſt, that the walks ſwim with water; this will cauſe the gravel to bind, ſo that when the walks come to be dry, they will be as hard as terrace.

Iron-mould gravel is accounted the beſt for binding, or gravel with a little binding loam in it; which latter, tho' it be apt to ſtick to the heels of ſhoes in wet weather, yet nothing binds better in dry weather.

When the gravel is over ſandy, ſome ſharp loam is frequently mixed with it, which, if they be caſt together in heaps, and well mixed, will bind like a rock; whereas, looſe gravel is as uncomfortable and uneaſy to walk on as any other fault in a walk can render it.

The beſt gravel for walks is ſuch as abounds with ſmooth pebbles (as is that dug at Blackheath) which being mixed with a due proportion of loam, will bind like a rock, and is never injured by wet or dry weather, and the pebbles being ſmooth, are not ſo liable to be turned up and looſened by the feet in walking, as are thoſe which are angular and rough; for where walks are laid with ſuch gravel as is full of irregular ſtones, they appear unſightly in a day's time after rolling, becauſe the ſtones will riſe upon the ſurface whenever they are walked upon, but the ſmooth pebbles will remain handſome two or three days without rolling.

Gravel-walks are not only very neceſſary near the houſe, but there ſhould always be one carried quite round the garden, becauſe, being ſoon dry after rain, they are proper for walking on in all ſeaſons; but then theſe ſhould be narrow, and thoſe adjoining to the houſe ought to be large and magnificent, proportionable to the grandeur of the houſe and garden. The principal of theſe walks ſhould be elevated, and carried parallel with the houſe, ſo as to form a terrace; this ſhould extend itſelf each way, in proportion to the width of the garden; ſo that from this there may be a communication with the ſide-walks, without going on the graſs, that there may be a dry walk continued quite through the gardens; but there is not a more ridiculous ſight, than that of a ſtrait gravel-walk leading to the front of a houſe, interſecting the graſs, ſo as to make it appear like the ſtiff formal graſs-plats frequently made in little court-yards by perſons of low taſte.

Graſs-walks in gardens were formerly in great eſteem, and looked upon as neceſſary ornaments to a garden; but of late years they have juſtly been baniſhed by every perſon of true taſte.

Having given directions for the making

king of gravel-walks, we come next to treat of ſand-walks, which are now very frequently made in gardens, as being leſs expenſive in the making, and alſo in the keeping, than the former; and in very irregular gardens, which are ſuch as moſt perſons eſteem, this is a very great article; for as the greateſt part of the walks which are made in gardens are carried about in an irregular manner, it would be very difficult to keep them handſome if they were laid with gravel, eſpecially where they are ſhaded by trees; for the dripping of the water from their branches in hard rains, is apt to waſh the gravel in holes, and render the walks very unſightly; and when theſe wood-walks are of graſs, they do not appear ſightly, nor are they very proper to be walked on; for after rain they continue ſo long damp as to render them unfit for uſe, and the graſs generally grows ſpiry and weak for want of air, and by the dropping of the trees, will by degrees be deſtroyed; therefore it is much better to lay theſe walks with ſand, which will be dry and wholſome; and whenever they appear moſſy, or any weeds begin to grow on them, if they are ſcuffled over with a Dutch hoe in dry weather, and then raked ſmooth, it will deſtroy the weeds and moſs, and make the walks appear as freſh and handſome as if they had been new laid.

In the modern way of laying out gardens the walks are carried through woods and plantations, ſo that theſe are ſhady and convenient for walking in the middle of the day. Theſe are uſually carried about, winding as much as the ground will admit of, ſo as to leave a ſufficient thickneſs of wood to make the walks private; and that the perſons who are walking in one part of them may not be ſeen by thoſe who are walking in any of the other parts.

Where theſe walks are contrived with judgment, a ſmall extent of ground will admit of a great many turns, ſo that a perſon may walk ſome miles in a ſmall garden. But theſe turns ſhould be made as natural as poſſible, ſo as not to appear too much like a work of art, which will never pleaſe ſo long as the former.

The breadth of theſe walks muſt be proportioned to the ſize of the ground, which in a large extent may be eight or ten feet wide, but in ſmall gardens five or ſix feet will be ſufficient. As the walks are deſigned to wind as much as the ground will allow, ſo this width will be ſufficient; becauſe the wider they are, the greater muſt be the turns, otherwiſe the walks will not be private for any diſtance. Beſides, as it will be proper to line the ſides of theſe walks with honeyſuckles, ſweet-briar, roſes, and many other ſweet-flowering ſhrubs, ſo the tall trees ſhould be placed at leaſt five or ſix feet from the walk, to allow room for theſe.

When the ground is traced out in the manner as the walks are deſigned, the earth ſhould be taken out of the walks and laid in the quarters. The depth of this muſt be proportioned to the nature of the ſoil, for where the ground is dry, the walks need not be elevated much above the quarters, ſo the earth ſhould be taken out four or five inches deep in ſuch places; but where the ground is wet, the bottom of the walks need not be more than two inches below the ſurface, that the walks may be raiſed ſo high as to throw off the wet into the quarters, which will render them more dry and healthy to walk on.

After the earth is taken out to the intended depth, the bottom of the walks ſhould be laid with rubbiſh, coarſe gravel, or whatever of the like nature can be moſt readily procured. This ſhould be four, five, or ſix inches thick, and beaten down as cloſe as poſſible, to prevent the worms from working through it, then the ſand ſhould be laid upon this about 3 inches thick, and after treading it down as cloſe as poſſible, it ſhould be raked over to level and ſmooth the ſurface. In doing this, the whole ſhould be laid a little rounding to throw off the wet, but there will be no neceſſity of obſerving any exactneſs therein; for as the whole ground is to have as little appearance of art as poſſible, the rounding of theſe walks ſhould be as natural, and only ſo contrived as that the water may have free paſſage from them.

The ſand with which theſe walks are laid ſhould be ſuch as will bind, otherwiſe it will be very troubleſome to walk on them in dry weather; for if the ſand be of a looſe nature, it will be moved with ſtrong gales of wind, and in dry

weather will ſlide from under the feet. If, after theſe walks are laid, they are well rolled two or three times, it will ſettle them, and cauſe them to be firm. If the ſand is too much inclinable to loam, it will alſo be attended with as ill conſequence as that which is too looſe, for this will ſtick to the feet after every rain; ſo that where ſand can be obtained of a middle nature, it ſhould always be preferred.

In ſome countries where ſand cannot be eaſily procured, theſe walks may be laid with ſea-ſhells well pounded, ſo as to reduce them to a powder, which will bind extremely well, provided they are rolled now and then; but where none of theſe can be eaſily procured, ſea-coal aſhes, or whatever elſe can be gotten, which will bind and be dry to the feet, may be uſed for this purpoſe; and where any of theſe can only be had in ſmall quantities, the walks ſhould have a greater ſhare of rubbiſh laid in their bottom, and theſe ſpread thinly over them; and in moſt places rubbiſh, rough ſtones, or coarſe gravel, may be eaſily procured.

WALLS, are abſolutely neceſſary in gardens, for the ripening of all ſuch fruits as are too delicate to be perfected in this country without ſuch aſſiſtance. Theſe are built with different materials; in ſome countries they are built of ſtone, in others with brick, according as the materials can be procured beſt and cheapeſt.

Of all materials proper for building walls for fruit-trees, brick is the beſt, in that it is not only the handſomeſt, but the warmeſt and kindeſt for the ripening of fruit; beſides that, it affords the beſt conveniency of nailing, for ſmaller nails will ſerve in them than in ſtone walls, eſpecially if the joints are not too large; and brick walls with copings of free-ſtone, and ſtone pilaſters or columns at proper diſtances, to ſeparate the trees, and break off the force of the winds, make not only the moſt beautiful, but the moſt durable walls.

In ſome parts of England there are walls built both of brick and ſtone, which have been very commodious. The bricks of ſome places are not of themſelves ſubſtantial enough for walls, nor are they any where ſo durable as ſtone; and therefore ſome perſons, that they might have walls both ſubſtantial and wholeſome, have built double ones, the outſide being of ſtone and the inſide brick, or a ſtone wall lined with brick; but when theſe are built, there muſt be great care taken to bind the bricks well into the ſtone, otherwiſe they are very apt to ſeparate one from the other, eſpecially when hard froſt comes after much wet; which ſwells the mortar, and frequently throws down the bricks, when the walls are only faced with them, and not well tied into the ſtone.

Where the walls are built entirely of ſtone, there ſhould be trelliſſes fixed up againſt them, for the more convenient faſtening the branches of the trees; the timbers of theſe eſpaliers need not be more than an inch and a half thick, and about two inches and a half broad; theſe ſhould be fixed croſs each other, at about four inches diſtance: for if they are at a much greater diſtance, it will be difficult to faſten the ſhoots of the trees properly. As this trellis will be laid cloſe to the wall, the branches of the trees will lie about two inches from the wall, in which poſition the fruit will ripen better than when it lies cloſe to the wall; ſo that there ſhould always be theſe eſpaliers framed againſt them, which will render theſe walls very good for fruit-trees, which, without the eſpaliers, ſeldom are found to anſwer the purpoſe of ripening the fruits well, beſides the inconvenience of having no good faſtening for the branches of the trees.

There have been ſeveral trials made of walls built in different forms; ſome of them having been built ſemicircular, others in angles of various forms, and projecting more towards the north, to ſkreen off the cold winds; but there has not been any method as yet, which has ſucceeded near ſo well, as that of making the walls ſtrait and building them upright.

The faireſt trial Mr. Miller ſays, he has ſeen made of circular walls was at Good wood in Suſſex, the ſeat of the Duke of Richmond, where in the middle of two ſouth walls, there were two large ſegments of circles, in which there were the ſame ſorts of fruit-trees planted, as againſt the ſtrait parts of the walls; but there never was any fruit upon the trees of the circular

part

part of the walls which came to maturity, nor were the trees of long continuance, being blighted every ſpring, and in a few years were totally deſtroyed; and when the branches of thoſe trees which grew upon the ſtrait part of the walls, had extended themſelves ſo far as to admit of their being led into the circular parts of the walls, they were conſtantly blighted & killed.

When the trees which had been planted in the circular parts were deſtroyed, the walls were filled with vines; but the grapes of the ſame ſort were full a month later than thoſe growing againſt the ſtrait part of walls; ſo that they rarely ripened, which occaſioned their being rooted out, and figs were afterwards planted, but the fruit of theſe ſucceeded little better; nor can it be ſuppoſed that any trees or plants will thrive ſo well in theſe circles where there is a conſtant draught of air round them, which renders the ſituation much colder than the open free air.

WALL-*Flower*. See GILLIFLOWER.

WALLWORT. Dwarf Elder.

WALNUT, [*Juglans*.] The ſpecies are, 1. The common walnut. Of the common walnut there are ſeveral varieties, which are diſtinguiſhed by the following titles: the large walnut, the thin-ſhelled walnut, the French walnut, the late-ripe walnut, and the double walnut; but theſe do all of them vary when raiſed by the ſeed, ſo that the nuts from the ſame tree will produce plants whoſe fruit will differ; therefore there can be no dependance upon the trees which are raiſed from nuts, till they have produced fruit; ſo that thoſe perſons who plant the trees for their fruit, ſhould make choice of them in the nurſeries when they have their fruit upon them, otherwiſe they may be deceived, by having ſuch as they would not chooſe.

2. Black Virginia Walnut. This grows to a large ſize in North-America. The leaves are compoſed of five or ſix pair of ſpear-ſhaped lobes, which end in acute points, and are ſawed on their edges; the lower pair of lobes are the leaſt, the other gradually increaſe in their ſize to the top, where the pair at the top, and the ſingle lobe which terminates the leaf, are ſmaller; theſe leaves, when bruiſed, emit a ſtrong aromatic flavour, as do alſo the outer cover of the nuts, which are rough, and rounder than thoſe of the common walnut. The ſhell of the nut is very hard and thick, and the kernel ſmall, but very ſweet.

3. Black Virginia Walnut, with an oblong fruit very deeply furrowed. This ſort grows naturally in North-America, where the trees grow to a large ſize. The leaves are compoſed of ſeven or eight pair of long heart-ſhaped lobes, broad at their baſe, where they are divided into two round ears, but terminate in acute points; they are rougher and of a deeper green than thoſe of the ſecond ſort, and have nothing of the aromatic ſcent which they have. The fruit is very long; the ſhell is deeply furrowed, and very hard; the kernel is ſmall, but well flavoured.

4. White Virginia Walnut, called Hickery Nut. This is very common in moſt parts of North-America, where it is called Hickery Nut. The leaves are compoſed of two or three pair of oblong lobes, terminated by an odd one; theſe are of a light green, and ſawed on their edges; the lower pair of lobes are the ſmalleſt, and the upper the largeſt. The fruit is ſhaped like the common walnut; but the ſhell is not furrowed, and is of a light colour.

5. White Walnut, with a ſmaller fruit, and a ſmooth bark. This ſort is not ſo large as the laſt. The leaves are compoſed of two pair of lobes, terminated by an odd one; theſe are narrow at their baſe, but broad and rounded at their ends; they are ſawed on their edges, and are of a light green. The nuts are ſmall, have a ſmooth ſhell, and are very hard and white.

6. White Walnut, with an oval compreſſed fruit, a ſweet kernel, and a ſcaly bark, commonly called Shag-bark in America. This kind grows naturally in North-America, where it riſes to a middling ſtature. The leaves are compoſed of three pair of ſmooth ſpear-ſhaped lobes, of a dark green colour, ſawed on their edges, and ending in acute points. The fruit is oval, the ſhell white, hard, and ſmooth, the kernel ſmall, but very ſweet. The young ſhoots are covered with a very ſmooth browniſh bark, but the ſtems and older branches have a rough ſcaly bark, whence it is called ſhag-bark.

The walnut, in the Linnæan ſyſtem, belongs to the claſs and order *Monoecia Polyandria*. The flowers begin to open about the middle of April, and are in full blow by the middle of May, before which time the leaves are fully diſplayed.

Theſe trees are propagated by planting their nuts, which ſeldom produce the ſame ſort of fruit as ſown; ſo that the only way to have the deſired ſort is to ſow the nuts of the beſt kinds; and if this is done in a nurſery, the trees ſhould be tranſplanted out when they have had three or four years growth, to the place where they are deſigned to remain; for theſe trees do not bear tranſplanting when they are of a large ſize, therefore there ſhould be a good number of trees planted, which need not be put at more than ſix feet apart, which will be diſtance enough for them to grow till they produce fruit; when thoſe, whoſe fruit are of the deſired kind, may remain, and the others cut up, to allow them room to grow.

But as many people do not care to wait ſo long for the fruit, the next beſt method is to make choice of ſome young trees in the nurſeries, when they have their fruit upon them. But though theſe trees will grow and bear fruit, yet they will never be ſo large or long-lived, as thoſe which are planted young.

All the ſorts of walnut which are intended for timber, ſhould be ſown in the places where they are to remain; for the roots of theſe trees always incline downward, which being ſtopped or broken, prevent their aſpiring upward, ſo that they afterwards divaricate into branches, and become low ſpreading trees; but ſuch as are propagated for fruit, are greatly mended by tranſplanting; for hereby they are rendered more fruitful, and their fruit is generally larger and fairer; it being a common obſervation, that downright roots greatly encourage the luxuriant growth of timber in all ſorts of trees; but ſuch trees as have their roots ſpreading near the ſurface of the ground, always produce the greateſt quantity and beſt-flavoured fruit.

In tranſplanting theſe trees, you ſhould obſerve never to prune either their roots or large branches, both which operations are very injurious to them; nor ſhould you be too buſy in lopping or pruning the branches of theſe trees when grown to a large ſize, for it often cauſes them to decay; but when there is a neceſſity for cutting any of their branches off, it ſhould be done early in September, (for at that ſeaſon the trees are not ſo ſubject to bleed) that the wound may heal over before the cold increaſes; the branches ſhould always be cut off quite cloſe to the trunk, otherwiſe the ſtump which is left will decay, and rot the body of the tree.

The beſt ſeaſon for tranſplanting theſe trees is as ſoon as the leaves begin to decay, at which time if they are carefully taken up, and their branches preſerved entire, there will be little danger of their ſucceeding.

The diſtance theſe trees ſhould be placed, ought not to be leſs than forty feet, eſpecially if regard be had to their fruit; though when they are only deſigned for timber, if they ſtand nearer, it promotes their upright growth. The black Virginia walnut is much more inclinable to grow upright than the common ſort, and the wood is generally of a more beautiful grain.

WANG-TOOTH, a jaw tooth.

WANT, a mole. See MOLE.

WANTY, a broad girth of leather, by which the load is bound upon a horſe.

WAPENTAKE, the ſame with what is called a hundred, and is the term generally uſed in the northern counties beyond the Trent.

WARBLES, ſmall hard tumours on the ſaddle part of a horſe's back, occaſioned by the heat of the ſaddle in travelling, or its uneaſy ſituation. *See Saddle*

A hot greaſy diſh-clout, at firſt frequently applied, will ſometimes remove them. Camphorated ſpirits of wine are alſo very effectual for this purpoſe to diſperſe them, eſpecially if a little ſpirit of ſal ammoniac be added to the camphorated ſpirit. If there be a neceſſity for working the horſe, care ſhould be taken to have the ſaddle nicely chambered.

WARREN, a franchiſe, or place privileged, either by preſcription or grant from the king, to keep beaſts and fowl of warren in; as rabbits, hares, partridges, &c.

WARP,

Wart a pimple in Mouth of Horſe's Leg. The Cauſe & Cure. See Canary or Frounce.

WARP, miscarry, slink her calf.

WARTWORT. Euphorbium.

WASTE, a name given to such lands as are in no man's possession, but lie common.

WATER is one of the most considerable requisites belonging to a garden; if a garden be without it, it brings a certain mortality upon whatsoever is planted. By waterings the great droughts in summer are allayed, which would infallibly burn up most plants; besides as to noble seats, the beauty that water will add, in making cascades.

Water not only acts as a vehicle to the nourishment of plants, but carries with it many particles which enrich the soil; especially after heavy rains. It then deposits a fertilising sediment, which turns the mould to a blackish colour. Watering likewise promotes the putrefaction of every vegetable and animal substance found in the earth, and thereby contributes greatly to meliorate the soil underneath the sward.

Plants which grow on dry pastures contain richer and more nourishing juices, than those which grow in moist places. Care should therefore be taken, that the quantity of moisture brought upon the pasture, be only such as shall give vigour to the plants, without over-charging their vessels.

Extreme heat should also be avoided in watering; because heat draws the moisture too hastily up into the plant, which is thereby filled with a watery juice, and rendered of so tender a texture, as easily to be killed afterwards by drought or cold.

Water CALAMINT. Horsemint.

WATER-CRESS. See *Water*-Cress.

WATER DROPWORT. See *Water* DROPWORT.

Water FLAG. [*Gladiolus Luteus.*] Yellow water-flag, Iris, bastard acorus, or water flower-de-luce. This plant grows common by the brinks of rivers and in other watery places. The root has a very acrid taste, and proves when fresh a strong cathartic: its expressed juice, given to the quantity of eighty drops every hour or two, and occasionally increased, has occasioned a plentiful evacuation, after jalap, gamboge, &c. had proved ineffectual. By drying, it loses its acrimony and purgative virtue. The *pulvis ari* of our dispensatory contains about one-fifth of the dry root.

Water GERMANDER. See *Water* GERMANDER.

Water HEMP AGRIMONY. See *Water* AGRIMONY.

Water HOREHOUND. See *Water* HOREHOUND.

Water LILY. See *Water* LILY.

Water PARSNEP. Skirret.

Water PEPPER. Biting Arsmart.

WATTLE. A kind of hurdle formed with split wood, and used for making folds for sheep.

WAX, or BEES-WAX. A substance formed by bees from the farina of flowers. See BEE.

WAY-BREAD. Plantain.

WAYFARING-TREE. [*Libinum.*] This tree grows naturally in many parts of Europe and America, and is either propagated from seeds or layers.

WEANEL. An animal newly weaned.

WELD. Dyer's Weed. See WOAD.

WEED. Any plant growing in a field different from what the farmer intended.

WHEAT. [*Triticum.*] The sorts of wheat cultivated in England now, and to answer all purposes, are known to the farmer under the names of red wheat, white wheat, and cone wheat; there are abundance of varieties, but when every thing is considered, these are enough, and distinction enough to make. We cannot with the greatest precision, perhaps, point out where each is particularly cultivated; but the red is much found in Bedfordshire, the white about Taunton, in Somersetshire, and the country about London, and the cone in Staffordshire, Herefordshire, &c.

Whatever distinctions might have been made of each grain to different sorts of land, we believe that each will grow on each, not that cone wheat is so well adapted to light land as white wheat, or as white wheat is to strong

It has been very justly observed by ancients, as well as moderns, that wheat will grow in almost any part of the world, and that, as it is the plant most necessary to mankind, so it is the most general, and the most fruitful. It thrives not only in temperate climates, but also in very hot and very cold

cold regions; and, when ſown in places where it never grew ſpontaneouſly, ſucceeds as well as where it has been always common. The ſucceſs of the crops of wheat in America plainly prove this: and, in Peru and Chili in particular, where this grain was not known till the Europeans introduced it there, it now produces as large crops as in moſt parts of Europe.

Wheat ſhould be ſowed in autumn, and always when the ground is moiſt. In the downs of Hampſhire, Wiltſhire, and Dorſetſhire, farmers begin to ſow their wheat in Auguſt, if any rain has fallen; and even employ their people to ſow one place, while they reap another, if wet weather interrupts them in the harveſt; for if the corn be not forward in autumn, ſo as to cover the ground before winter, it ſeldom does well on thoſe high dry lands, eſpecially if the enſuing ſpring proves likewiſe dry. In low ſtrong lands, ſome huſbandmen think they are in good ſeaſon, if they get their wheat into the ground by the middle of November; nay, it is ſometimes Chriſtmas, or even later, before all their wheat is ſown. But this late ſown wheat, beſides being apt to run too much to ſtraw, eſpecially if the ſpring be moiſt, is liable to be thrown out of the ground by froſts.

Some gentlemen have been curious enough to procure their ſeed wheat from Sicily, and it has ſucceeded very well as to the growth; but the grain of this ſpecies has proved too hard for our Engliſh mills to grind.

The beſt time for ſowing wheat is about the beginning of September, eſpecially if any rain has fallen; a circumſtance ſo eſſential, that if the earth be very dry, the farmer had better ſtay till friendly ſhowers have moiſtened his ſoil, than put his corn in ground where it will not grow before it has been wet, let the time be ever ſo long. Mr. Mortimer ſays, he has known wheat to be ſo muſtied and ſpoiled by laying long in the ground before rain has come, that it has never grown at all; to which he adds, that he has likewiſe ſeen very good crops grow from ſeed ſown in July. At all events, the huſbandman ſhould certainly have his wheat ſowing finiſhed by the middle of October. Whoever neglects this, ſhews in ſo doing a want of proper œconomy in his affairs, and will have cauſe to repent his delay.

Early ſowings require leſs ſeed than late ones, becauſe the plants then riſe better, and acquire ſtrength to reſiſt the winter's cold. More ſeed ſhould always be allowed for poor lands than for rich, becauſe a greater number of plants will periſh on the former. Rich lands, ſowed early, require the leaſt ſeed of any.

Another circumſtance which the huſbandman ſhould carefully attend to in ſowing is, that his eſtimate of ſeed be formed, not from the capacity of any particular meaſure, but from the number of grains which that meaſure will contain; becauſe the grains of ſome growths of wheat are much larger than thoſe from off other lands, though of the ſame ſpecies, and perhaps equally good. By not conſidering this, the ground will of courſe frequently be ſown too thick, or too thin; though we believe, farmers are ſeldom apt to run into this laſt extreme. That they too often commit the former error, ſo manifeſtly contrary to their intereſt in every reſpect, is demonſtrated by reaſon, and by daily experience:—but neither of theſe is ſufficient to make them deviate from the beaten track. Inſtead of the uſual allowance of three buſhels of ſeed wheat to an acre of land, repeated trials have ſhewn that half or two-thirds of that quantity is generally more than ſufficient; conſequently a great deal of corn is actually thrown away; for the expence of purchaſing ſeed, which moſt ſkilful huſbandmen generally do, at leaſt every other year, amounts to a conſiderable article in large farms, and in a whole country, merits the attention of the public, eſpecially in ſcarce years; beſides which, the future plants, crowded together by being thus ſown too thick, and not having a ſufficient ſpace allowed them for a ſuſtenance, cannot yield near ſo fine and plentiful a crop as they would otherwiſe produce. A fair trial, made with proper care, would ſoon convince farmers of their error in this reſpect; for if they but examine a field of corn ſown in the common way, they will find few plants with more than two or three ſtalks, unleſs by chance, where ſome of them ſtand ſo as to have room to ſpread. Theſe

These will have six, eight, or ten stalks, and frequently many more; but a field of wheat sown with only a bushel of corn, has been known to be well covered with healthy vigorous plants, each of which has had from six to fourteen or more stalks, crowned with long well-nourished ears, full of fine plump grain, of which it has yielded a much greater quantity than any of the neighbouring grounds, sown with the common allowance. If the land be good, and the plants stand at a proper distance from each other, few of them will produce less than the above number of stalks and ears. But farmers think they shall have no crops if the ground be not covered with the blades of corn by the spring: whereas if they would have patience to wait till the plants put out all their stems, they would be amply convinced of the contrary. Every one must have observed, in places where foot-paths are made through corn fields, that, by the sides of those paths, where the corn is thin, and has been trodden down in winter and spring, the plants have stood erect, when most of the corn in the same field has been laid flat upon the ground; and advantage which can arise from no other cause, than that their stalks are stronger from their having more room: for those of the other plants are drawn up tall and slender, by being too close together.

Cow WHEAT. See COW WHEAT.

Indian WHEAT. See GUINEA *Wheat.*

WHEE *or* WHEY. A heifer.

WHICKEN TREE. Service tree.

WHINS. Furze.

WHISKET. A basket.

WHITE-CLOVER. A well known plant, and reckoned the sweetest feed of any of the sown grasses; and it is of most advantage to the farmer, because it is perennial, or lasts a great number of years on the land.

This plant sends forth roots at every joint, so that it thickens, and soon makes a thick sward. When land is to be laid down for pasture, the farmer will reap great profit, if, with about four bushels of clean-sifted hay-seed to an acre, he sows eight pounds of this clover, but it is to be remarked, that it is never to be sown with corn.

It may be sown either in spring or autumn; if in spring, it may be cut about the latter end of July; if sown in autmun; the crop will be much earlier. As soon as ever the hay is off the land, it should be rolled with a heavy roller. In laying down land with these grasses, it will be proper for the farmer to be very careful that he cleans the land of all sorts of weeds; and the hay-seeds are to be sown first, immediately after which the clover is to be regularly scattered. After sowing, the land should be lightly harrowed, with a short tined harrow, to bury the seed; and a few days after if the weather be dry, it should be rolled, to break the clods, and close it.

It will be good husbandry, if, after the plants are come up, the farmer should send in some weeders, to pull up all the tall rampant weeds which might injure the crop, for, if they are suffered to feed, they will soon stock the land.

It will be proper to take the advantage of dry weather, and roll the land three or four times, after the plants have attained some size; for the clover taking root at every joint, the sward will thereby be greatly thicken'd.

If a farmer knows his own interest, he will sow some of this white clover-seed by itself, in order to supply himself with what seed he may want, for it is sometimes very dear. The best season for sowing is autumn, upon dry lands, about the beginning or middle of September; but in open, cold lands, much exposed, a month sooner is better: all the caution required in this autumnal sowing is to let the land be very well rolled in the month of October, before the frosts come on, and again in March.

WHITE-SCORE. A disease with which sheep are too often affected and by which great numbers of them die.

The following medicine has been often given with success, provided the sheep are at the same time removed into a dry pasture.

Take a pint of old verjuice, half a pound of common or bay salt, dried well before the fire, pounded, and sifted through a sieve. Then mix the verjuice with the salt by degrees; and add half a pint of common gin, and bottle it up for use. When any of your sheep are seized with this disorder, separate

separate them from the flock, and give each of them three large table spoonfuls of the mixture for a dose, repeating it two days after if they are not better.

WHITE-LANDS. Chalky lands.

WILDS. A term used by our farmers to express that part of a plough by which the whole is drawn forward.

WILDERNESS. A kind of grove of large trees, in a spacious garden, in which the walks are made either to intersect each other in angles, or have the appearance of meanders and labyrinths.

WHORTLEBERRY. Bilberry.

WIDOWWAIL. [*Cneorum.*] This is a low evergreen shrub, and might form an agreeable variety in wilderneſſes, &c. It is eaſily propagated by ſcattering the ſeeds.

WILLOW. See SALLOW.

Dutch or *Sweet* WILLOW. Candleberry-tree.

French WILLOW. See French *Willow*.

Sweet WILLIAM. See Carnation.

WINDFLOWER. See ANEMONE.

To WINNOW. To clear corn of the chaff.

WITHERS. The part of a horſe where the ſhoulder-bones join at the bottom of the neck and mane.

WITHWIND. Bindweed.

WINTER *Aconite*. Hellebore.

WINTER *Cherry*. See *Winter* Cherry.

WINTER *Green*. See *Winter* Green.

WINTER *Creſs*. Water-Creſs.

WINTER's BARK. [*Cortex Winteranus.*] The produce of a tree growing in Jamaica, Barbadoes, &c. called by Sir Hans Sloane *periclymenum rectum, foliis laurinis, cortice acri aromatico*. It was firſt diſcovered on the coaſt of Magellan, by Captain Winter, in the year 1567; the ſailors then employed the bark as a ſpice, and afterwards found it ſerviceable in the ſcurvy; for which purpoſe it is at preſent alſo ſometimes made uſe of in diet-drinks. The true winter's bark is not often met with in the ſhops, canella alba being generally ſubſtituted for it, and by many reckoned to be the ſame; there is, nevertheleſs, a conſiderable difference betwixt them in appearance, and a greater in quality; the winter's bark is in larger pieces, of a more cinnamon-colour than the canella; and taſtes much warmer and more pungent.

WITCH HAZEL, [*Hamamelis.*] This plant grows naturally in North-America, from whence the ſeeds have been brought to Europe, and many of the plants have been raiſed in the Engliſh gardens, where they are propagated for ſale by the nurſery gardeners. It hath a woody ſtem from two to three feet high, ſending out many ſlender branches, garniſhed with oval leaves, indented on their edges, having great reſemblance to thoſe of the hazel; they fall away in autumn, and when the plants are deſtitute of leaves, the flowers come out in cluſters from the joints of the branches; theſe ſometimes appear the latter end of October, and often not till December, but are not ſucceeded by ſeeds in this country.

As the flowers of this ſhrub make very little appearance, ſo it is only preſerved in the gardens of the curious, for the ſake of variety.

It is propagated by laying down the young branches in autumn, which will take root in one year, and may then be taken from the old plants, and planted where they are to remain. The ſeeds of this plant always remain a whole year in the ground, ſo they ſhould be ſown in pots.

WOAD. Weld, or Dyer's Weed. The Engliſh plant, called by botaniſts *Iſatis ſativa, vel latifolia*.

A light, black, kindly, and rich ſoil, or a meadow newly broken up, is choſen for the cultivation of Woad; but it muſt not by any means be ſown on ſtony or ſhallow land. It thrives well in plains, but ſtill better on the ſouth ſide of a hill; the eſſential point is, that the ſoil be good, and that it have the above-mentioned qualities.

Though the land which is intended for Woad be never ſo good, it muſt be dunged a year before it is ſown with this plant, and be made firſt to bear a crop of wheat, or of onions, &c. After theſe are taken off, three deep ſtirrings ſhould be given with the plough, or, which is much better, with the ſpade: the firſt ſtirring ſhould be in November, and the other two in February, March, or April. If the land which is intended for woad lies flat, and has not ſlope enough to carry off the wet, channels muſt be cut of a greater or leſs ſize, according as the ground is more or leſs diſpoſed to retain the water.

In

In warm climates, Woad is ſown ſo early as the beginning of April, unleſs the weather chance then to be too cold, in which caſe this ſowing is deferred till the beginning of May; but for countries like ours, where the ſpring is attended with froſts, particularly in the night, Mr. Miller is certainly right in adviſing to lay the land up in narrow high ridges juſt before winter, that the froſt may mellow it; to croſs plough it in the ſpring, laying it again in narrow ridges, and between this time and the enſuing month of June to harrow it well twice at different intervals, in order to root up whatever weeds may have appeared; then, in June, to give the ground a third ploughing as deep as the plough will go, making the furrows narrow; after this, to harrow it again when any new weeds are come up; and finally, towards the end of July, or the beginning of Auguſt, to plough it for the laſt time, laying it as ſmooth as poſſible A good harrowing after this will fit it completely to receive the ſeeds, which if rain falls ſoon after their being ſown, or if they are ſteeped in water during the night before their ſowing, as Mr. Miller adviſes, will appear in a fortnight, if the ſeaſon be favourable. They ſhould be but lightly covered, and ſhould be ſowed ſo thin as that the plants may ſtand ſix inches aſunder. Some ſtrew pigeon's dung on the land juſt after having ſown it with Woad, and the plants become much the finer for this manure.

When the Woad is grown large enough to be diſtinguiſhed, it ſhould be carefully cleared of all weeds, for theſe would hurt it greatly; and at the ſame time the plants ſhould be thinned wherever they ſtand too cloſe: without this precaution, the Woad would produce but very few leaves, and would remain extremely ſtinted in its growth.

Woad generally affords two crops in the ſame year, and ſometimes, when the ſeaſon has been favourable, it has yielded even four. The two firſt are the beſt, and theſe are commonly mixed together in the manufacturing of this plant; but the after-crops are always kept ſeparate; for if theſe are mixed with the other, the whole will be ſpoiled.

The firſt crop ſhould be gathered towards the end of Auguſt, and the laſt at the end of October, or in the beginning of November: but this laſt crop muſt be got in before the firſt froſts come on; for the leaves that might be gathered afterwards would not be worth any thing. When the plant is ripe, which is known by its firſt leaves beginning to dry, all the leaves are cut off by a man who graſps the plant by handfuls, and they are then laid in a heap to wither. Whilſt they are in this ſituation, they muſt be ſheltered from the ſun and rain, and they muſt be frequently turned, in order that they may heat equally: they are then carried to a mill ſomewhat like that which is uſed for preſſing the oil out of linſeed, and are there ground till they are reduced into a paſte, which is afterwards formed into cakes of about a pound weight, and theſe are laid to dry in a covered place where neither the ſun nor rain can come at them. This paſte is dried thus for about a fortnight, that is to ſay till it has acquired conſiſtence enough to be formed into ſmall roundiſh lumps, by means of little wooden moulds into which it is put for that purpoſe. As faſt as theſe lumps are taken out of the moulds, they are laid upon wicker hurdles looſely woven, ſo as not to touch one another, and in ſuch manner that the air may come at every part of them, as is practiſed in the drying of ſtarch. Theſe lumps become very hard, and in this condition it is that they are ſold. When they are to be uſed, they muſt be ſteeped a long while in water before they can be broken.

The Woad thus prepared yields an excellent blue dye, very laſting, and with which all the degrees of this colour may be made. It is not long ſince this plant was preferred to indigo; afterwards, through a kind of toleration, the dyers were allowed to put a ſmall quantity of indigo into their vats of Woad; but now, that the making and manner of uſing indigo have been greatly improved, it is looked upon as a matter of indifference whether that or Woad be uſed for dying blue.

WOLFSBANE, [*Aconitum.*] The plants, of which there are ſevera

cies, grow naturally on the Alps, and on the mountains of Auſtria and Tartary. Moſt if not all are hurtful in a greater or leſs degree, ſo care ſhould be taken where they are planted.

Wholeſome WOLFSBANE, [*Anthora.*] This plant may be diſtinguiſhed from the poiſonous aconites by its leaves being more finely divided, and not at all bright or ſhining: it grows wild on the Alps. The root has been ſuppoſed uſeful againſt poiſons, particularly that of the *thera*, (whence its name.) Some nevertheleſs look upon this pretended antidote itſelf as unſafe.

WOOD. A large plantation of trees.

WOODCOCK *Soil.* Ground whoſe ſoil under the turf is of the colour of a woodcock, and is not good.

WOODLAND. Ground covered with woods. It is alſo a term uſed by the farmers of many counties in England, for a ſort of ſoil, from its conſtant humidity and dark colour, reſembling the ſoil in woods, which, of whatever nature it originally is, will always be made to appear thus from the continual dropping of trees, and the want of a free air and ſun, together with the fall of leaves, deſtroyed and waſhed to pieces by the wet.

WOODY. Abounding with wood.

WOODBINE. See HONEYSUCKLE.

WOODROOF. Petty Madder.

WOOD-SAGE. Tree Germander.

WOOD-SORREL. See WOOD *Sorrel.*

WOOL. The covering of ſheep. Each fleece conſiſts of wool of ſeveral qualities and degrees of fineneſs, which the dealers therein take care to ſeparate.

The Engliſh and French uſually ſeparate each fleece into three principal ſorts, viz. 1. Mother-wool, which is that of the back and neck. 2. The wool of the tails and legs. 3. That of the breaſt and under the belly. The Engliſh wool moſt eſteemed is, chiefly that about Leominſter, Coltſwold, and the Iſle of Wight; the Spaniſh, principally that about Vegovia; and the French, about Berry.

Both wool, and woollen rags, make an excellent manure. The rags ſhould be chopped ſmall, about an inch or two ſquare, and ſcattered on the earth at the ſecond ploughing; for being thereby covered, they will begin to rot by ſeed-time. They imbibe the moiſture of dews and rain, retain it long, and, as Dr. Home obſerves, thereby keep looſe ſoils in a moiſt ſtate. They coſt about four-pence a buſhel at London, from whence many loads are ſent every year to Dunſtable (which is 30 miles) where they are laid even on ſtiff lands, juſt after the ſowing of the corn, allowing to the acre four ſacks of ſix buſhels each.

WORMS, are very prejudicial to corn fields, eating up the roots of the young corn, and deſtroying great quantities of the crop. Sea-ſalt is the beſt of all things for deſtroying them. Sea water is proper to ſprinkle on the land where it can be had; where the ſalt-ſprings are, their water will ſerve, and were neither are at hand, a little common or bay-ſalt does as well. Soot will deſtroy them in ſome lands, but is not to be depended upon, for it does not always ſucceed. Some farmers ſtrew on their lands a mixture of chalk and lime; and others truſt wholly to their winter-fallowing to do it, if this is done in a wet ſeaſon, when they come up to the ſurface of the ground, and ſome nails with ſharp heads be driven into the bottom of the plough. If they are troubleſome in gardens, the refuſe brine of ſalted meat will ſerve the purpoſe, or ſome walnut leaves ſteeped in a ciſtern of water for a fortnight or three weeks, will give it ſuch a bitterneſs that it will be a certain poiſon to them. A decoction of wood-aſhes, ſprinkled on the ground, will anſwer the ſame purpoſe; and any particular plant may be ſecured both from worms and ſnails by ſtrewing a mixture of lime and aſhes about its roots. It is a general caution among the farmers to ſow their corn as ſhallow as they can, where the field is very ſubject to worms.

WORMWOOD, [*Abſinthium vulgare.*] Common wormwood. The leaves of this ſort of wormwood are divided into roundiſh ſegments, of a dull green colour above, and whitiſh underneath. It grows wild in ſeveral parts of England; about London, large quantities are cultivated for medicinal uſe: it flowers in June and July, and after having ripened its ſeeds, dies down to the ground, excepting a tuft of the lower leaves, which generally abides the winter.

Sea WORMWOOD. The leaves of ſea wormwood are much ſmaller than thoſe of the common, and hoary on the upper ſide as well as the lower; the ſtalks alſo are hoary all over. It grows wild about our ſalt marſhes, and in ſeveral parts about the ſea coaſts. In taſte and ſmell, it is weaker and leſs unpleaſant than the common wormwood. The virtues of both are ſuppoſed to be of the ſame kind, and differ only in degree.

Roman WORMWOOD. This ſpecies is very different in appearance from the two foregoing: it is in all its parts ſmaller than either; the leaves are divided into fine filaments, and hoary on the lower ſide; the ſtalks, either entirely or in part, of a purpliſh hue. It is a native of the warmer countries, and at preſent difficultly procurable in this, though as hardy and as eaſily raiſed as any of the other ſorts.

Roman wormwood appears to be the moſt eligible of the three as a ſtomachic; and is likewiſe recommended by ſome in dropſies.

WOUNDWORT. Golden Rod.

WOUNDWORT *of Achilles*. Milfoil.

Y.

YARD-LAND. A quantity of land, in ſome countries fifteen acres, in ſome twenty, and in others twenty-four, thirty, and thirty-four acres.

YARROW. Milfoil.

Water YARROW. This plant grows naturally in ſtanding waters in many parts of England; the leaves which are for the moſt part immerſed in the water, are finely winged and flat, like moſt of the ſea plants, and at the bottom have long fibrous roots, which ſtrike into the mud: the flower-ſtalks riſe five or ſix inches above the water; they are naked, and toward the top have two or three whorls of purple flowers, terminated by a ſmall cluſter of the ſame. Theſe flowers have the appearance of thoſe of the ſtock-gilliflower, ſo make a pretty appearance on the ſurface of the water.

YELLOWS. See JAUNDICE.

YEW. [*Taxus.*] This tree grows naturally in England, and alſo in moſt of the Northern Counties of Europe, and in North-America. If ſuffered to grow, it will riſe to a good height, with a very large ſtem. It naturally ſends out branches on every ſide, which ſpread out, and are almoſt horizontal; theſe are cloſely garniſhed with narrow, ſtiff, blunted pointed leaves, of a very dark green. The flowers come out from the ſide of the branches in cluſters; the male flowers having many ſtamina, are more conſpicuous than the female; theſe for the moſt part are upon different trees, but ſometimes are upon the ſame tree; they appear the latter end of May, and the berries ripen in autumn.

The Yew tree has been generally cultivated for the pleaſure-garden, both to clip into the figures of beaſts, birds, &c. and alſo for hedges. Whoever is pleaſed with ſuch figures in his garden, can raiſe no tree more proper for his purpoſe, as the branches and leaves may be clipped and faſhioned into almoſt any form or ſhape. But as this method is juſtly exploded, and as every one who has the leaſt pretenſion to taſte muſt always prefer a tree in its natural growth to thoſe monſtrous figures, the Yew is now chiefly planted for wilderneſs quarters, as alſo for hedges, for which ſervice it is excellently well adapted, as no tree bears clipping ſo well.

Theſe trees may be eaſily propagated by ſowing their berries in autumn, as

ſoon as they are ripe, (without clearing them from the pulp which ſurrounds them, as hath been frequently directed) upon a ſhady bed of freſh undunged ſoil, covering them over about half an inch thick with the ſame earth.

In the ſpring the bed muſt be carefully cleared from weeds, and if the ſeaſon proves dry, it will be proper to refreſh the bed with water now and then, which will promote the growth of the ſeeds, many of which will come up the ſame ſpring, but others will remain in the ground until autumn or the ſpring following; but where the ſeeds are preſerved above ground till ſpring before they are ſown, the plants never come up till the year after; ſo that by ſowing the ſeeds as ſoon as they are ripe, there is often a whole year ſaved.

Theſe plants, when they come up, ſhould be conſtantly cleared from weds, which, if permitted to grow amongſt them, will cauſe their bottoms to be naked, and frequently deſtroy the plants when they continue long undiſturbed.

In this bed the plants may remain two years; after which, in autumn, there ſhould be a ſpot of freſh undunged ſoil prepared, into which they ſhould be remov'd the beginning of October, planting them in beds about four or five feet wide, in rows about a foot aſunder, and the ſame diſtance from each other in the rows, obſerving to lay a little mulch upon the ſurface of the ground about their roots, as alſo to water them in dry weather until they have taken root; after which they will require no farther care, but to keep them clear from weeds in ſummer, and to trim them according to the purpoſe for which they are deſigned.

In theſe beds they may remain two or three years, according as they have grown, when they ſhould again be removed into a nurſery, placing them in rows at three feet diſtance, and the plants eighteen inches aſunder in the rows; obſerve to do it in autumn, as was before directed, and continue to trim them in the ſummer ſeaſon, according to the deſign for which they were intended; and after they have continued three or four years in this nurſery, they may be tranſplanted where they are to remain; always obſerving to remove them in autumn where the ground is very dry, but on cold moiſt land it is better in the ſpring.

Theſe trees, though of ſlow growth, do ſometimes arrive at a conſiderable ſize. Mr. Pennant mentions one in Fontingal church-yard, in the Highlands of Scotland, whoſe ruins meaſured fifty-ſix feet and a half in circumference.

Of the Yew there is a variety with ſhort leaves, which appear very ornamental in plantations. There is alſo another with ſtriped leaves of great value amongſt the variegated tribes. Theſe are increaſed by layers, but the ſtriped ſort muſt be planted upon a barren ſoil, otherwiſe it will become plain.

YEOMAN. The firſt, or higheſt degree of the plebeians of England. The yeomen are properly freeholders, who cultivate their own lands.

YOAK, or YOKE. A frame of wood, fitted over the necks of oxen, whereby they are coupled together, and harneſſed to the plough.

YOAK *of Land*. The quantity of land which a yoak of oxen might plough in a day.

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